

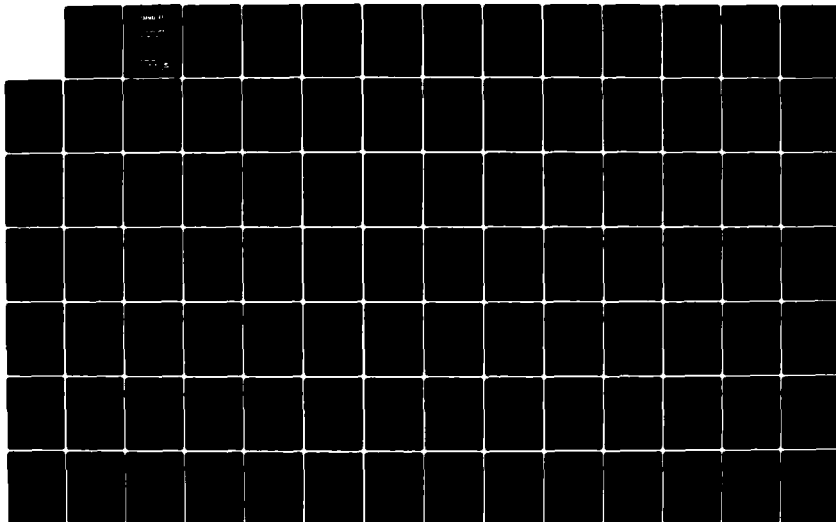
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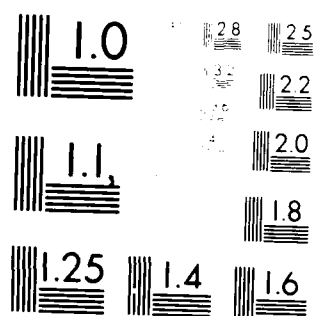
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CARMAX 83

A JOINT WAR GAMING RESEARCH PROJECT

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JUNE 1983



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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) In recent years, key decision makers in both the United States Army and the United States Air Force have realized the need for an understanding of the manner in which both services conduct their missions in a joint and combined arena. CARMAX, a academic war gaming exercise, was designed for the study of joint and combined deployment doctrine. The exercise which was jointly developed as a student research product by both senior services colleges provided a medium			

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through which students could increase their awareness of the need for close coordination between air and ground forces while disclosing potential problems exacerbated by the conduct of war in a joint, combined environment. CARMAX 83 was the realization of an initiative presented by the Army Chief of Staff in 1979 and its importance in the educational process of the professional military officers from the Army and Air Force can only be measured by the facility with which future commanders conduct operations in the joint environs.

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CARMAX 83

A JOINT WAR GAMING RESEARCH PROJECT

BY

COL H.I. BUCKLES	LTC J.A. MCCLOUD
LTC W.C. BURNS	LTC E.B. MORRISON
LTC W.G. CARTER	LTC J.W. MURRAY
LTC R.J. CASTLEMAN	COL W.C. PAGE
LTC J.W. CUMMINGS	LTC F.M. PEARCE, USAF
LTC D.H. DECKER	LTC T.H. SELLERS
COL A. DICAPRIO	LTC D.H. VOLTA
MR. D.G. DIXON	CDR W.E. WELLS, USN
LTC R.E. ENTLICH	LTC W.E. WESSNER

STUDENT PROJECT LEADER

LTC E.G. TEZAK
WEST POINT FELLOW

FACULTY ADVISOR

LTC J.H. MATTHEWS
DEPARTMENT OF WAR GAMING

UNITED STATES ARMY WAR COLLEGE
CARLISLE BARRACKS, PA 17013

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PART A

INTRODUCTION

CHAPTER I

INTRODUCTION

A. GENERAL.

CARMAX is an academic war gaming exercise designed for the study of joint/combined employment doctrine. The 1983 project evolved as a student research effort to determine its feasibility, and to identify and demonstrate the mechanics required for conduct of the exercise. The ultimate objective of CARMAX is to serve as the vehicle through which participants from the United States Army War College (USAWC) and the United States Air Force Air War College (AWC) can examine how combat forces from both services can be employed in concert during joint/combined military operations. Especially important is that the warfare principles, concepts and doctrine (AirLand Battle and AirLand Battle 2000), and constraints of both services, which impact on our ability to jointly project war-fighting powers, be clearly understood by participants from senior service colleges.

B. EDUCATIONAL BENEFITS.

CARMAX provided students with an increased awareness of the need for close coordination between air and ground forces while disclosing potential problems that could occur during the conduct of operations. The necessary communications and cooperation required in a joint war gaming exercise provided a feel for a more realistic operational situation and gave the students a better understanding of the capabilities and limitations of air assets that can be used in the AirLand Battle.

CHAPTER II

HISTORICAL PERSPECTIVES

A. GENERAL.

Historically, the art of war gaming has been around the military for as long as there has been the business of war fighting. It has been used in various ways to try to understand and assess one's enemy and how one can improve one's own capabilities to overcome that enemy and win on the battlefield. As an art war gaming has gone through both the evolutionary process and the revolutionary throes of the technological age. Commanders and decisionmakers at all levels of the military structure have used war games and related exercises for various reasons from seeking the "right solution" to addressing ways in which forces could be structured to overcome quantitative disadvantages possessed by the enemy. The use of war gaming to assist decisionmakers has undergone many cyclic periods varying between periods when it was favorably considered to times in which it was considered useless and a complete waste of time and resources. When decisionmakers begin to rely on war gaming exercises, models, and computer programs to provide them with the "right and total answer" then the decisionmaker is headed for severe criticism. War games can only provide the user with a medium in which the components of the war fighting problem can be analysed with some semblance of order and purpose. War games give the user only approximate answers to the problem being faced. Users looking for precise answers through the use of war games can only expect to be precisely wrong in their solutions. Regardless, the application of war games and related exercises will continue to provide users with outstanding means to address the numerous related and unrelated factors affecting the outcome of battle. It is for this reason that war gaming occupies a valid position in the structure of the senior service colleges of the military

hierarchy of the United States Armed Forces.

B. FOUNDATION.

CARMAX 83, the acronym for the joint war gaming exercise conducted between the Army War College at Carlisle Barracks and the Air War College at Maxwell Air Force Base, is a theater-level computer assisted game designed to be played simultaneously between both of the participants. The history of CARMAX actually began in 1977 when war gaming activities were reinstituted at the Army War College to support the change and expansion in the curriculum. During the assessment of the war college and its contribution to the professional military education of army officers, in particular, one area identified for future consideration for curriculum enhancement was in the use of war games conducted between two or more of the senior service colleges.

C. THE NEED.

In 1979, General E. C. Meyer, Army Chief of Staff, sent a letter to the Department of War Gaming citing the need to develop and conduct a joint war game with the Air War College as a means of developing a better understanding of the joint actions necessary between air and ground force commanders for the successful execution of a war in a theater of operations. During a subsequent visit to the college General John Vessey, then the Army Vice Chief of Staff, alluded to this need for a joint war game and confirmed General Meyer's desire to implement such a program. The Army, reinforced by the conclusions drawn concurrently and separately by the Air Force hierarchy, had come to the realization based upon experiences in exercises and from recent confrontations that the officers in both the Army and the Air Force lack the proper understanding of the necessary actions to successfully execute joint and combined air/land operations.

D. COMMITMENT.

It was during this period that efforts were underway in Training and Doctrine Command to revise and rewrite the doctrine that the Army would use for the near future and in the longer term. The doctrine of "Active Defense" would yield to a new and more demanding doctrine which addressed all aspects of the air and land battle. The institution of the AirLand Battle doctrine in the form of FM 100-5 clearly underlined the need for Army officers to develop a thorough understanding and an appreciation for the close cooperation required in the execution of combat operations in the joint and combined arena. In order to meet the challenge directed at the Army War College by Generals Meyer and Vessey to develop a joint war gaming capability, representatives of both the Army and the Air War Colleges met in late 1981 and signed a memorandum of understanding which laid the foundation for a mutual program of work. (See Appendix I to Annex A). With the expansion of the Department of War Gaming as a separate Department in the Army War College in 1982, CARMAX became a reality in the form of this research project and advanced course. (See Appendices II & III to Annex A).

PART B

PROJECT DEVELOPMENT

CHAPTER III

PREPARATION

A. GENERAL.

Actual preparation for the CARMAX project began in late August 1982 with appointment of LTC John H. Matthews, Director, Operational Simulations, Department of War Gaming, as the Program Director. In keeping with the scheme of planning for the introduction of new curriculum topics and measures, it was necessary to organize the program as a student research project and to introduce the topic as an Advanced Course elective. (Appendix I to ANNEX B). In early September recruitment of student controllers for the Corps and MATC war games was initiated. (Appendix II to ANNEX B). An invitation to participate in the joint war game with the Air War College was extended to the class as a whole but especially to the group that had volunteered to act as student controllers for all the War Gaming exercises. In early October 1982 eighteen students at the Army War College were identified to be project officers for CARMAX 83. (Appendix III to ANNEX B). The student leader was LTC/Adj. Tezak, the ISMA Fellow assigned to the Department of War Gaming for AY 82-83. As noted in Appendix I & II a total of two advanced course credits as well as credit for a military studies project would be received for participation in the CARMAX project. One advanced course credit for being a student controller and one advanced course credit and satisfaction of the Military Studies Program requirement for participating in the joint war game project. During this same period, five project officers were identified at the Air War College to craft their portion of the project. Twelve more were to be identified to help in the play of the game in the March-April time frame. (See Appendix IV to ANNEX B). Through an administrative discrepancy at the Air War College, these latter

students were never identified. The game was still conducted with no major problems, from Carlisle's point of view, due to the manpower shortage.

B. COORDINATION.

Col Dean Pappas, Director, CAWD and CRES PMO, and Maj Ken Anderson, CRES PMO, Air War College, met with Col Wallace Franz, Mr. John Roley, LTC Edward Tizak and LTC John Matthews in late September to discuss the conduct of CARMAX 83. The status report is at Appendix V to ANNEX B. LTCs Matthews and Tizak along with Mr. John Roley traveled to Maxwell Air Base in October for a coordination visit and a briefing on the TWX game used by the Air War College. In October, three Maxwell players came to Carlisle for further coordination and to play the MTM NATO Game. These coordination visits proved invaluable and resulted in the development of joint project objectives, milestones, communications requirements, and practice game schedules. These coordination documents are contained in Appendix VI to ANNEX B. A draft Memorandum of Agreement on CARMAX 83 was developed to document the planning decisions which were agreed upon in the coordination meetings. The complete text of the agreement is at Appendix VII to ANNEX B.

C. PLANNING AND OBJECTIVES.

The basic decision to be made was to determine which model to use. Options included using MTM or TWX only, each school using both simultaneously, or each school using its own model independently with an interface capability. A consensus was to employ the last option for the first iteration of the game in March-April 83. The objective of the project was three-fold: establish and test joint theater-level war game concepts and procedures; design and develop a joint war gaming exercise for simultaneous play between the Air War College and the US Army War College; and exercise the AirLand Battle Doctrine.

D. MILESTONES/SCHEDULES/TESTS.

Initial planning guidance, project organization and detailed milestones, (Appendix VII. to ANNEX B) were developed for the group at Carlisle. A schedule for the actual time phased play of the daily game was mutually agreed upon and tested for feasibility. During the period from January through mid-March there were two major exercise tests and a number of separate communications tests conducted. The major tests involved all the players from both schools and were conducted in the afternoons to facilitate player availability. LTC Matthews went to Maxwell during both these tests. LTC Lynn Jackson, USAF, from Maxwell, observed the play at Carlisle during the second test. The first test was a disaster. There were major problems with the model and the communications link. The second test uncovered some other weaknesses which were addressed by game time. The Memo for Record is at Appendix IX to ANNEX B. The numerous communications test were conducted primarily between LTC Matthews, at Carlisle, and Maj Tony Stojak, CAWD, Maxwell.

E. POSITIONS.

The students were organized into BLUE, RED and Controller teams. The duties and command functions for the are listed at Appendix X to ANNEX B. The Controller Team monitored the sequence/information flow/timing of the game. Details are contained in Appendix XI to ANNEX B. More detailed discussions of player organization and input are found in later portions of this report.

F. SYLLABUS.

The Advanced Course Syllabus, which detailed the elective requirements, was prepared by LTC Matthews. (See Appendix XII to ANNEX B).

CHAPTER 1V

ADMINISTRATION

A. GENERAL.

To support a project of the magnitude of CARMAX and because this type of project had never been conducted before, there were numerous administrative actions that were necessary to insure that the project would have a chance for successful completion. Several coordination meetings were held with various department and division representatives from all parts of the college and post. The topics for discussion included room support, communications support, photo coverage, printing, computer equipment, administrative supplies, and assistance from commercial sources. Following all these initial periods of coordination it became readily apparent that support would have to come from two basic sources--external and internal. Most of the initial coordination came as a direct result of the efforts of LTC Matthews as the Project Director. Follow-up actions rested to some degree with the various student coordinators who were assigned areas of responsibility in the research project milestones.

B. EXTERNAL SUPPORT.

1. Most of the external support requirements dealt with the acquisition of maps and communications equipment. In the process of acquiring additional maps to support the game, one of the student players was a civilian who had worked with the Defense Mapping Agency and made direct contact with members of that agency to assist us with the maps we needed for the game. Although most of the maps used were available at the War College from the Library Map Section, the Defense Mapping Agency did supply several supporting maps and additional copies of maps that were not immediately available at the War College.

2. The prime source of external support came in meeting the requirements

for communications links to facilitate the conduct of the game between Carlisle and Maxwell. Initial coordination meetings were held with the Chief, Logistics and Maintenance Division; with the Chief, Army Communications Center, Carlisle; with civilian representatives of the Bell Telephone System; and with the Technical Advisor, Army Communications Command, Fort Ritchie, Maryland. An initial attempt was made to secure the use of a teleconferencing capability for support of the game. To play as envisioned would have required the availability of a duplex teleconferencing package using a communications satellite to link the earth stations at both Carlisle and Maxwell. Discussions on this subject revealed that the cost would reach about \$60,000 for 5 days of use at only 1 hour per day. In addition the time necessary to install the equipment in the time frame available would not have been adequate to insure proper support for the project. Coverage via teleconferencing for CARMAX 83 was not considered feasible at that time but will be addressed for support of later iterations of the game/exercise. The actual communications support provided and that requested was the same. Detailed discussions follow in the chapter on communications. It must be pointed out that coordination for this type of support must begin in the October-November time frame if sufficient and proper support is to be acquired and provided for the exercise.

3. The acquisition of information relative to the concept of operations and doctrine for Red forces for war gaming support is sufficiently important that it warrants specialized consideration in this section of the report. Throughout the Army, the existence of a good knowledge base in the form of Red war gamers is very limited. This being the case, it is crucial, for good "Red" war game support during CARMAX, that steps be taken very early in the organizational phase of the game to lock in personnel having the necessary expertise on Soviet/Warsaw Pact doctrine and concepts of operations. In this

iteration of CARMAX, the support was provided by the Office of the Assistant Chief of Staff for Intelligence, HQDA. However, some expertise is also available from HQ TRADOC. If the students and war game developers are to fully develop an understanding of our own doctrine and that of the opposing side we must take every opportunity to avail ourselves of the advice of the experts--those knowledgeable in Soviet doctrine and its influence and impact on US military doctrine and concepts of operation.

C. INTERNAL SUPPORT.

1. Support provided for the conduct of the game from sources within the college covered the areas of rooms, photography, computer modifications, reproduction capability, administrative supplies, and communications equipment. Each of these areas will be discussed in detail in the following paragraphs.

2. Initial coordination for commitment of rooms to play the game was with the Chief of Staff(CofS). A request was made for the allocation of two adjacent seminar rooms for the exercise. (See Appendix I to ANNEX C.) As time passed and the requirements for rooms to support the Advanced Courses became apparent, all coordination was made directly with Mrs. Joan Capehart in the Administrative Branch of the Office of the Chief of Staff. As plans for the conduct of the game evolved, the need for a second Altos microcomputer became apparent. It was to be used to support the strategic mobility portion of the exercise, serve as a backup for the game computer and provide a word processing capability for use in producing the after action report. (Appendix II to ANNEX C). In addition, the location of the Altos microcomputers in the rooms for the game necessitated that some modifications be made to the rooms. A hole had to be drilled in the common wall between the two rooms in order to allow for the connecting cables from computers to printers and terminals in the opposite room. This action was coordinated directly with the Chief, Logistics and

Maintenance Division who arranged with the Facility Engineer to drill the hole. The basic layout of the seminar rooms to facilitate game play is provided in Appendix III to ANNEX C. Some slight modifications were made during the conduct of the game to better exercise the flow of people and information. Each room was set-up with six tables which were used for the various commanders and staffs and for the controllers assigned to the teams. Also located in each room were two telephones, one Silent 700 Electronic Data Terminal, two complete Altos microcomputer systems with peripheral devices, signs designating each team, information boards, and other administrative items. One additional room was requested and made available for the use of the telecopier. The room was adjacent to the RED/Controller room and the office of the Operations NCO for DNISS. Direct coordination was made with the NCO for its use. One separate telephone hook-up was made in this room for the sole purpose of supporting the telecopier.

3. As this project was the first of its kind, arrangements were made to have several photographs taken during the conduct of the exercise to provide for a historical record of the game layout and some of the participants in the exercise. All coordination for this support was made through the Operations NCO, Department of War Gaming. He submitted all the requests for photography support directly to the Photo Lab. The photographers made numerous slides of all the rooms and the activities in the rooms on four separate dates spaced throughout the conduct of the exercise.

4. During the initial phases of the exercise no special arrangements had been made for the reproduction of computer generated printouts and other game materials needed in the course of the exercise. Initially it had been thought that existing reproduction equipment available to support the exercise located on the third floor in DCS and in the library would be adequate to satisfy all

game related reproduction requirements. However, it soon became apparent that in order to insure that proper and timely record keeping procedures were being maintained, in support of the commander's and staff's decisionmaking processes, alternate arrangements would have to be made with regard to improving the access to reproduction equipment. Through the direct intercession by the Chairman, Department of War Gaming, a small desk top reproduction unit was secured for use by the players. It was located in Room C231 for continuous availability by all the players. Although not a specific piece of reproduction equipment, a telecopier was acquired for dedicated use by the group. It served as a back-up for the transmission of reports between both player locations when communications problems arose during the sending and receiving of reports via the Silent 700 electronic data terminals. The telecopier also offered the flexibility of allowing the transmission of hand written messages and back-up copies of messages previously erased from computer memory. The telecopier was acquired through the direct coordination with the Chief, Logistics and Maintenance Division. The machine was placed on loan from the Strategic Studies Institute for the period of the exercise. As a source for a back-up to this capability, the Operations Group Communications Center has a telecopier which can be used to support the transmission of critical game messages. This back-up capability was not used during CARMAX 83.

5. It became readily apparent from the beginning of the exercise that some means of recording student comments and observations would be needed if a good record was to be created for support of the after-action report and for historical purposes. Each student had been advised to make comments and observations which could be used after the exercise was completed to make improvements to the game and overall project. Due to the fact that a second Altos microcomputer was available for support of the exercise, it was decided

to take advantage of the word processing capability of the computer. The WORDSTAR word processing and text editing program was installed in the second computer to allow players to keep a dynamic record of comments and observations during the course of the war game. The computer was set up to allow for separate entries by players in each of the game rooms. Since the WORDSTAR process was totally foreign to most of the students, there was some difficulty in using this program in the beginning. As the game was being played, instruction in the use of WORDSTAR was being given to various members of each of the teams. However, during subsequent iterations of CARMAX, pre-instruction is absolutely required to facilitate the use of this very powerful support capability. This will insure that more timely response will be given relative to the logging of observation inputs. Having this capability also facilitated the preparation of the final after-action report as the overall research report was typed and edited on the computer in draft form.

6. In order to enhance the layout and organization of the rooms and the teams signs and other graphic support was used for the game. All the graphic support was requested directly through the Reprographics Division of the college. Signs were made up for each of the commands and staffs of both the Red and Blue teams as well as for the maps, overlays, reports and other game information. Two special bulletin boards were constructed to facilitate the posting of the situation report, intel report, air status report and the logistics report. These boards were constructed of blue and red felt which allowed velcro-type tape to be used to post the reports. In addition, two signs were made which graphically displayed the Allied Forces Central Europe Planning and Execution Cycle and Allied Forces Central Europe Organization for Combat. These two signs illustrated the planning and execution cycle for the conduct of ground and air coordination to support the joint operations and the organiza-

tion in the European Central Region which actually manages overall joint operations. In addition to the support provided by Reprographics, the software program in the microcomputer has a graphics support package which enables users to produce a full size hex overlay printout which can be used to assist players in the organization and conduct of the exercise. This graphical printout produces the same type of hex overlay that is printed on the plastic overlay. The paper printout allows the players to maintain information relative to the location of airfields, roads, bridges, targeting fixed installations and facilities, and weather zones as provided by Maxwell.

7. Several pieces of auxiliary computer related equipment were necessary to provide proper interface and access between Carlisle and Maxwell during the conduct of the exercise. All of the equipment and supporting modifications was furnished by the Automation Support Branch of ITD. Silent 700 Model 745 Electronic Data Terminals were placed in each team room to provide the capability to send and receive messages from Maxwell through their Honeywell 6000 computer. This was the primary means used to transmit information between the two player locations for both the Red and the Blue teams in addition to the controller traffic. Early during the coordination phase of the project it was suggested that Maxwell have direct access to the data files available in the Altos microcomputer. The capability to do this did not exist at that time. Discussions with the computer support personnel at Carlisle revealed that this type of access could be built into the software program which support the war game exercise. An extensive program modification was made which allowed the controllers and players at Maxwell to have direct access to the situation reports and the intelligence reports that were created for the players at Carlisle. However, due to the restrictions in the manner in which the data files were built in the memory this access could not be allowed simultaneously

during the play of the game. Special instructions for the use of this particular interface program are found at the Inclosure to Appendix XI to ANNEX B and Appendix I to ANNEX D. The physical access to the data files was processed through the use of a modem device connected to the microcomputer which permitted the telephone to be used to relay the information to Maxwell. The information was printed out at Maxwell on their Silent 700 terminal. At the beginning of the project and subsequent to the testing of the communications network it was discovered that Maxwell did not have the correct electronic data terminal model which would interface with our Altos microcomputer through the telephone modem. This problem was eliminated when the computer support branch at Maxwell acquired the correct model of the Silent 700 for their use. Throughout the conduct of the game minor computer problems arose which were corrected by the computer support personnel in ITD. These problems did not cause any major disruptions to the game.

8. To support the conduct of the game there was the need to have two sets of 1:1,000,000 scale maps of the European region. One set was placed in each room to allow the players to maintain a general situation relative to game play. In addition, two sets of scale 1:500,000 maps were used for the current situations for the player teams. These map sheets were Series M444 and are of limited availability because they have been discontinued by the Defense Mapping Agency. These maps proved insufficient as they imposed severe restrictions on planning for deep targeting. Realistic targeting on deep or second echelon targets was impossible because of the lack of map coverage for the primary areas of concern for both the Red and the Blue teams. It became quite evident during the conduct of the game that the number of maps used was not sufficient to facilitate overall play of the game. Each commander and his staff require the exclusive use of a set of maps to facilitate their planning and conduct of

operations in their sectors. This would help alleviate the congestion that often occurred at the map board during the exercise as commanders and staffs tried to plan and conduct current posting of situations and intelligence information on a single map. All coordination relative to the acquisition of maps for the game was provided by Mr. Richard Weary, Library Map Officer.

9. There were three sizes of magnetized playing pieces that were available for support of the game. Initial development of the game reveal that the large size did not facilitate the movement of pieces while allowing the players to keep track of the situation relative to the units involved. The small magnets were not large enough for proper display of the units on the scale of map being used. The medium sized magnets were deemed the best size for game purposes. Printed sheets depicting the orders of battle for the teams were produced by Reprographics and block cut to facilitate their being detached and glued to the magnets. Two sets of the Red and the Blue order of battle were put together. One complete set of each was furnished to each of the teams for their use. Some blank playing pieces were available but indications were that there was an insufficient number of this pieces for the players. Additional pieces would also facilitate the institution of a deception plan as commanders and staffs develop their campaign plan. The use of the magnets also permitted the use of colored map pins which were used to indicate the various levels of combat power and the status of intelligence information. The color codes used are found in Appendix IV to ANNEX C.

10. All other administrative type of supplies and equipment was requested through the Operations NCO, Department of War Gaming. (See Appendix V to ANNEX C.) Although not initially requested, accordion folders and manila folders were used and found to provide a better system of organization of daily activities and report filing for the players. In addition, the quantity of supplies

available proved more than adequate for support of the exercise. In the earlier stages of development of the project, students used quantities of acetate to produce operations type of overlays showing the axes of advance and unit boundaries where Chartpak tape in different colors were used to indicate the various borders. Although some pre-printed forms were available to support the game, the players developed several other forms to facilitate the record-keeping requirements for controlling the flow of information and data exchanges. Copies of these forms may be found at Appendix VI to ANNEX C.

CHAPTER V

COMMUNICATIONS REQUIREMENTS

A. GENERAL

During the game, the primary means of communication between the USAWC and the USAFWC was a telephone data link. Information concerning the current land situation was passed from Carlisle to Maxwell via the Altos microcomputer using a modem and a Silent 700 Electronic Data Terminal Model 745 hereafter referred to as an EDT Model 745. Hardcopy backup information on Carlisle's BAI and RECCE requests and Maxwell's BAI and RECCE results were passed between Maxwell and Carlisle utilizing Maxwell's Honeywell 6000 and EDT Model 745s at Carlisle and Maxwell. Many of the problems encountered were caused by the fact that both players and controllers were unfamiliar with the correct procedures for both log-on and utilization of the correct user IDs. Appendix I and II of ANNEX D contains the details concerning log-on and user IDENT procedures. Consequently, the players became increasingly dependent upon controllers to operate the EDT Model 700. Since Carlisle utilized four controllers (four is the minimum number that should be used), the impact of this overreliance upon controller or player effectiveness varied. It varied according to when the particular message or request had to be submitted to Maxwell and to what level of play activity was taking place.

B. MESSAGE TRAFFIC.

1. Messages were submitted to and from Maxwell using many of the formats developed for support of the game message traffic (see Appendix VI to ANNEX C). The message traffic flow was developed to facilitate the conduct of play between the two locations because of the availability of the computer at Maxwell, the time zone change, and the input requirements of each of the

separate models. Since the TWX model and related game play is more of a planning exercise, all of the daily air planning support factors had to be discussed between the collocated command/staff elements being simulated in the exercise play. The required information at these various levels were passed between 1030 and 1200 hours daily. Such information included CINCENT-COMAAFCB discussions of the apportionment of resources and the allocation of assets to the Army Groups. The Army Group/ATAF staffs would follow up with coordination and discussions of the allotment of resources between CAS and BAI and the distribution of sorties to the Corps (i.e., divisions in CARMAX) for each day's operations. At the end of each TWX run, the Blue and Red Maxwell players would furnish the Carlisle Controllers the breakdown as to the results of CAS, BAI, RECCE, OCA, and DCA sorties. The CAS information then formed the basis for inputs to the MTM for committing CAS sorties to the divisions of both the Red and the Blue ground maneuver units. Following the conclusion of each day's ground battle, the losses to CAS aircraft as reported in the MTM Landsitrep were sent to Maxwell so they could determine the number of aircraft available for subsequent operations. In addition, the daily situation and intelligence summary was created by the MTM for subsequent direct access by the Maxwell teams.

2. While the passing of information via the EDT Model 745 was important throughout each play day it was absolutely critical for CAS distribution, BAI priority request lists and at RECCE request time (passed daily 1200 Carlisle time). This reliance necessitated the use of one controller to pass the information to Maxwell. The use of one controller to pass both BLUE and RED requests resulted in only minor time delays in submissions of information to Maxwell. (In a seminar configuration the players should perform this function. However, in order for this to be accomplished, some familiarity with the

fundamentals of the EDT Model 745 and computer operations should be known. This could be accomplished by taking advantage of Carlisle's off duty basic computer course.)

2. Another minor drawback to use of the EDT Model 745 is that it did not have the capability to make multiple copies of messages. In order to preserve an audit trail, controllers either had to make additional copies or let the players have the message for their working copy. A better way of performing all of these functions would be to build a data link system which allowed Carlisle and Maxwell to talk direct via either an Altos-to-Altos or an Altos to a Honeywell. In implementing this comment the program designer would have to take into account the fact that while the game is in progress the Altos cannot be interactive with an output device such as a Modem.

C. EQUIPMENT.

1. To provide the necessary communications capabilities for interfacing with the Air War College in Montgomery, Alabama, four unrestricted commercial lines and four autovon lines were required. Two of the commercial lines were dedicated to the two Silent 700 portable terminals located in rooms C229 and C155 respectively. The other commercial line was used for Command and Control purposes. The Silent 700 portable terminals were used to interface with the host Honeywell computer at the Air War College. Daily requests for CAS/BAI air support were sent via the BLUF Team Silent 700 to an electronic mailbox hosted on the Maxwell AFB Honeywell computer. The second Silent 700 was used to access another electronic mailbox at Maxwell in order to receive the results of CAS/BAI air strikes. The use of commercial lines vice autovon was necessary due to the unreliability of autovon service (priority preemptions seriously impaired war game operations). The two autovon lines were used for the less critical and less timely voice communications with the Air War College. One

additional commercial/autovon line was installed in room C231 to support the operation of the telecopier.

2. Coordination between the Simulations and Gaming Division and the Operations Division of the Army Communications Command was initiated in November 1982 relative to obtaining the required communications lines and other communications related equipment. For future joint war games, we recommend that coordination be initiated approximately 90 days prior to the start of the war games. Expenditures for the communications lines are listed in the following table.

TABLE I.

COMMUNICATION LINES	INSTALLATION COST	MONTHLY COST	LONG DIST CHARGE	TOTAL
5 Commercial	\$280(\$56/Inst.)	\$240(\$48 Inst.)	\$1200*	\$1720
5 Autovon Lines	\$280(\$56/Inst.)	-----	-----	280
Grand Total				\$2000

*Approximate Cost

3. PortaComs, commonly referred to as acoustic couplers, were not required for the CARMAX exercise as stand-alone or separate items. The Silent 700's that were used did incorporate built-in acoustic couplers for interface with telephone units. In the event in future joint war games that dumb terminals, either CRT keyboard or non-CRT keyboard, are employed vice the Silent 700's, PortaComs would be required to link these terminals telephonically with the host computer at the remote site (i.e. Maxwell). This alternative should be considered as a CRT-Printer configuration offers numerous advantages over the somewhat limited Silent 700. Messages could be typed on the CRT terminal keyboard and visually reviewed and edited before transmitting. The

printer unit slaved to the CRT terminal could be used to generate a hardcopy of the message sent for record keeping purposes. Also, it could provide hardcopy output of messages or "electronic" mail received from the remote host computer. The quality of the printer output is far superior to that of the Silent 700. The primary drawback to this approach is the cost especially if these units are not available within the USAWC. Rental or lease arrangements would have to be made in this case.

4. A facsimile unit or telecopier provides a reasonably responsive and effective means of transmitting existing hardcopy information preferentially in typed form to a remote site such as Maxwell AFB. Use of these means of communication infers that a similar and compatible device is readily accessible at the receiving end. During CARMAX, use of the telecopier, included the transmission of information, including printout generated by the Altos computers, to Maxwell AFB. It also served as a backup to the Silent 700's in the sense that air support requirements could be transmitted once they were in typed form. Obviously, use of the telecopier vice the Silent 700 was less efficient and responsive due to the need for existing legible hardcopy. Since a already available telecopier was utilized, no rental costs were incurred for CARMAX use. However, for future joint war games, coordination with the Operations Division of the Communications Command should be at least 75 days prior to initiation of the game, to allow adequate time for rental or leasing. The estimated cost for leasing is approximately \$75 per month with a minimum of two months charge.

CHAPTER VI

THE WAR GAME

A. GENERAL.

1. An effort was made to incorporate several facets of the material covered throughout the regular curriculum in order to provide the students with a logical, thought-provoking evaluation and assessment of the use of politico-military simulations, force deployment analyses, and the execution of combat roles and missions. This logical and interrelated sequence of events would give the students a medium through which they could address key factors and relationships affecting the decisionmaking processes necessary for the prosecution of a successful defense policy. Several general scenarios were developed by the Director, Politico-Military Simulations, Department of War Gaming, for consideration as a potential buildup to the commencement of hostilities.

2. These scenarios were reviewed and one was selected which best met the criteria for CARMAX. The selected scenario was then tailored to the specific objectives of the exercise and a copy was provided to the Air War College for concurrence. The scenario was accepted and introduced as a basic part of the Memorandum of Agreement for the project. (See Appendix VII to ANNEX B.)

3. In developing the play of the game it became quite apparent that one area needed addressing in greater detail. This was force deployment and its impact on unit movement between CONUS and the European Theater. During the initial stages of development of the CARMAX project, there was a simultaneous development of a strategic mobility model called Force Assessment Deployment Simulation (FAST) designed to address key force deployment factors and inter-related decision variables. The FAST model was considered for use in support of the force deployment portion of CARMAX. Although not completely compatible

with the MTM model, it was used to draw attention to the need to expand force deployment considerations in the overall CARMAX project. It was evident from the limited use of FAST in this project that it would become a key factor in future iterations as the entire relationship between strategic, operational, and tactical levels of war preparation and war fighting is analyzed and evaluated. (See Appendix I to ANNEX E).

B. CONCEPTS OF OPERATION.

1. RED Scenario/Oplan.

a. Support in the form of a model of a realistic Soviet/Warsaw Pact concepts of operations and Operations Plan was provided by the Office of the Assistant Chief of Staff, Intelligence (OACSI). (See Appendix II to ANNEX E). The model was modified in both areas of RED FORCE execution and organization in order to provide a more flexible attack option within each of the front areas played--the Northwestern Front, the West-Central Front, and the Southwestern Front. The Front concepts of operations are contained at Appendix III to ANNEX E.

b. The major change instituted was the creation of Operational Maneuver Groups (OMG's) in the Northwestern and Southwestern Fronts respectively. Other changes included: adding or subtracting to front divisional strength, designating axis of advance for OMG's in the NW and SW Fronts and specifying lines of advance within the various axes based on terrain analysis. The nine axes of advance in the three fronts, along with the general starting locations for each Front Operational Maneuver Group are shown on the map of the "Soviet Forces Operational Plan" which is contained in Appendix II to ANNEX E.

2. Blue Scenario/Oplan. The concept of operations for Blue (NATO) Forces was developed based on the following assumptions:

a. NATO Forces would have sufficient strategic intelligence warning

and/or justification based upon a series of incidents between NATO and Warsaw Pact countries to warrant an increased defensive posture (simple alert status). This would permit early deployment to defensive positions along the IGB and allow for both the early stages of mobilization (for Western European Allies) and the initial deployment of US Forces under a Reforger type plan. For war game play, this occurs NLT D-Day minus 5. (D-Day is the war game day on which the initial battle contacts occur). Appendix IV to ANNEX E contains the schedule used for the conduct of play.

b. Control of all national forces passed to NATO (SACEUR) on D-Day minus 4. SACEUR ordered deployment of forces to their General Defensive Positions (GDP) to begin on D-Day minus 3. Control of French Army Forces passed to NATO (SACEUR) on D-Day minus 3. (General Alert)

c. Normally, the deployment of NATO Forces would be done in accordance with already existing GDP plans. However, due to the non-classified nature of the game, operational plans have to be developed by player personnel prior to D-Day minus 3 to facilitate a ground tactical plan and movement of units into forward defensive positions. Examples of the unclassified plans Oplans used for AFCENT, NORTHAG, and CENTAG are in Appendix V to ANNEX E.

C. ORDERS OF BATTLE.

1. The development of the Orders of Battle was accomplished through the use of unclassified sources. A declassified TRADOC war game Order of Battle served as the departure point. Other unclassified sources were drawn upon to include the Weapons and Tactics of the Soviet Army by David Isby. The tailored Orders of Battle and the TVD Concept of Operations included three fronts in the first echelon represented by: the Northwestern Front with three Polish and a Soviet airborne division; the West Central Front with six Soviet/East German armies and a Soviet airborne division; and the Southwestern Front consisting

of two Czechoslovakian and Soviet armies, and one Soviet army and one Soviet airborne division.

2. The RED Order of Battle for the CARMAX 83 game was developed jointly with members of the AWC RED Team and Mr. John F. Sloan, Operations Research Analyst (RED Team), OACSI. The Order of Battle is contained in Appendix VI to ANNEX F.

3. The BLUE Order of Battle was derived from basically the MTM NATO game of AY82. Adjustments were made continuously during coordination meetings as the need arose. The Order of Battle for Blue is contained in Appendix VII to ANNEX F. For game play, the US 1st Inf Div and US 2d Arm Div arrived in the NATO theater prior to simple alert (D-Day minus 5) and joined their respective forward based brigades.

4. In the BLUE Force order of battle, units showing a D are available for combat in forward areas on D-Day. They are generally available for movement to forward defensive positions on General Alert (D-Day minus 5). Units with an availability date later than D-Day were available for forward movement from ports and from POMCUS sites on the day indicated. This takes into account a time factor for mobilization and arriving Reforger units.

5. PARAMETERS.

1. Development of BLUE and RED Air Units. By agreement between the Army and Air War Colleges, only close air support and air transportation were to be played in the Army War College's McClintic Theater Model (MTM). All other air combat and support functions and missions were to be simulated by the theater war exercise model used by the Air War College. Attrition against CAS mission aircraft was computed in the MTM. All other attrition against aircraft in the play of the game was determined by the TWX model. Airfields were only attacked by opposing air units, therefore no surface to surface missiles or rocket units

were targeted against airfields in the play of the game in the MTM model. Only the Army War College MTM model had the capability to play nuclear and chemical weapons. By agreement the CARMAX 83 play had no nuclear weapons played, chemical weapons were played in the MTM model by both the RED and BLUE Teams against ground maneuver units not in contact.

2. Changes were made to the BLUE and RED unit data base for CARMAX 83. These changes were made to the unit data base for CARMAX two months before the start of the play of the game. The changes were in direct response to the rules of play. Only the type of aircraft capable of CAS, BAI or transport of airborne units were left in the MTM unit data base for the game. Each type of aircraft to be played in the MTM model was grouped into one unit and given an unit ID number. Each air unit was then given a dummy location at an airfield already in the MTM hex data base and one that was included in the TWX data base. The list of aircraft was obtained from the Air War College and is contained in Appendix VII to ANNEX B.

3. The combat parameters consistent with the MTM model and the mission of the aircraft were entered into the unit data base. All attrition factors other than those due to ground fire were zeroed out since the TWX model would be used to compute aircraft losses due to all factors except those due to ground fire for aircraft on CAS missions. The range of all combat aircraft was increased to a point that it did not become a factor in the MTM model. The Air War College computed range, aborts and attrition which in turn became limits on the sorties available for CAS and BAI missions for the next day.

4. At the start of the day's game play, the Air War College would notify each commander of the sorties available for the next day's operations. After determining the breakout by command and CAS and BAI missions, the aircraft available for CAS would be determined. A sortie rate of 3 was assumed, there-

fore the available CAS sorties had to be divided by 3 to give the number of aircraft systems available for allocation to the various ground units.

5. During the play of the game in the MTM model attrition was computed on those CAS aircraft in support of ground units and passed on to the Air War College at the end of the day's play. In addition, if an air base was in danger of being overrun by ground units, this information was also passed. These were the actual airbases used not the dummy ones created for game play in the MTM model.

D. TARGETING

1. The following procedures were used to develop the target data base for ANMAX 85. The set-up of the fixed targets and unit targets was completed two weeks prior to the start of the game. Each unit's ID number became its target ID number for the Air War College's TWX model. Both the RED and BLUE G-2 players selected a set of critical road junctions, highway bridges, and railroad bridges that could be possible targets during the play of the game. Originally 200 fixed targets were chosen on each side. Because of limitations in the TWX model, only 150 BAI targets to include units was used by the Air War College. However, all 400 fixed targets were entered in the hex data base.

2. The following shortcomings in the targeting play were noted during play of the game. The hex data base was inadequate to cause an interaction between air strikes against fixed targets and the movement of units in the MTM model play. The damage criterion used in the TWX model against bridges was not compatible with the MTM method of handling destroyed bridges (e.g. the problem of converting a 30% damage of a bridge into a time delay for movement of an unit across a river). The timing of air strikes against moving targets (selected as targets for BAI sorties) became a problem at the beginning of the game due to the difference in timing of the models. Later, the play used was that a

BAI sortie or sorties were targeted against a hex location. This was passed to the controllers who would then determine if a unit was actually in that hex location at the time of the request. If a unit was present then its target ID number would be passed to the Air War College team. If by chance no unit was in the hex identified, the BAI sorties allocated would be lost for the day. No secondary targets were struck.

3. The target data base was not complete and many of the rivers and bridges were not represented. This particular item must be expanded if play of the AirLand Battle Doctrine is to be completely effective for future iterations. Other considerations relative to targeting must also be taken into account for subsequent game play. All major bridges, roads, tunnels, and rivers should be placed in the hex data base at least a month before the start of the game. A number of target ID numbers should be assigned as bridges, tunnels and road junctions and given to the Air War College. Since the TWX model does not play geography, target ID can be shifted daily by the RED and BLUE G-2 players for BAI targets. Then, when they are struck, the controllers can enter in the Director mode and destroy that bridge or tunnel prior to the start of the MTM game play for the day. In this way air strikes can be used to delay or channelize movement. The use of target ID numbers should be continued for all units. However, logistics and the effects of strikes against command and control facilities needs to be accounted for in the MTM model for AirLand Battle doctrine to be adequately exercised.

F. PRE-HOSTILITY MESSAGE TRAFFIC.

1. Pre-hostilities activity by RED players involved preparation of terrain analysis, fixed target designations, data base updates, North/Central/South front and staff organization, presentation of oral intelligence estimates and preparation of operations plans based upon commander's estimates.

2. Pre-hostilities message traffic, proper use of intelligence, terrain analysis, fixed target designations, data base development, communications, situational visualization, presentation of oral intelligence estimates and preparation of wing group operations plans based upon AFCEM guidance. The CARMAX exercise projected a deteriorating relationship between east and west during the Spring of 1965. As the exercise commenced on 28 March, with computer play, additional message traffic was received from the AFCEM level. AFCEM information provided a strategic backdrop reflecting increased tensions, new IAW force deployments and generalized situational updates.

3. During the period 28 March (D minus 5) through D-Day, the BLUE forces planned on wing play (MTM) generated information--based upon detected ALL movement data--to confirm intelligence estimates and defensive plans. Thus a data base (situational) had to be developed to support the pre-hostilities situation. This data base was gradually developed and by D-Day was still somewhat less than satisfactory. Helpful information would have included more carefully detailed RED unit identifications and dispositions. The MTM simply could not depict the pre-hostilities RED data that NORTHAG/CENTAG required. This probably was noted also by the RED players. BLUE Forces also generated oral and written communications with AFCEM in the pre-hostilities phase. These covered a wide variety of subjects--essentially most efforts were devoted to the theater interface, RECCO/inter requests and force dispositions.

4. During future exercises the pre-hostilities message traffic should be kept at a minimum and pre-exercise force generations, moves, etc., should be planned without specific message flow. (See Appendix VIII to ANNEX). Minimal pre-hostilities message traffic is required to support CARMAX but more precise intelligence information (RED unit identification/locations) would be desirable. BLUE Force generations need not be stimulated by specific flow of

messages--one would suffice (e.g. the availability of the Dutch divisions). Several members of the NORTHAG group felt that the AFNORTH units in the boundary area should have been more active (the RED cross-over effect); and this seems logical since the pre-hostility NORTHAG estimate did not materialize due to the stability in AFNORTH's area.

PART C

EVALUATION

OBSERVATIONS AND COMMENTS

A. GENERAL

1. The CARMAX joint theater-level computer-assisted war gaming exercise was a totally unique experience and research project. The very nature of the development process of this project did not lend itself to a predetermined objective system of evaluation. There were too many unknown variables and factors which could have had a disastrous influence on the project from the beginning. For that reason, it was decided from the very outset of the project that only a subjective analysis and assessment of the exercise would do justice to the project. Each and every player was cautioned to be alert to the shortcomings and to the strengths of the exercise in order to facilitate the development of the after-action report and analysis that would lend itself to proper assessment of the value to be derived from a research project of this magnitude. The players and other participants willingly, with serious thought toward enhancing the project and the exercise, produced numerous comments and observations about CARMAX.

2. This chapter contains the observations and comments developed by all players and controllers in the preparation stage and during the course of the exercise. The intent was to document game and model problems so that corrective action could be taken to enhance the project prior to subsequent exercises. As the exercise progressed, participants completed standardized comment sheets which were then entered into the WORDSTAR word processing system. After completion of the exercise, these observations and comments were consolidated and edited for inclusion in the report. All individual comments and observations are contained in ANNEX F. The general comments below have been summa-

alized for clarity and facility in addressing the key factors affecting the project. The observations in the appendices have been numbered in sequence and grouped to refer to the summarized entry.

B. THE GAME. (See Appendix I to ANNEX F).

1. Air Support.

a. CAS/BAI (Observations 1-6). This area received major emphasis by air controller personnel and the game was successfully played due to these efforts. Major problems encountered were: a method is needed to determine aircraft/sorties needed to interdict (delay or disrupt) units on the move particularly for the Deep Battle and not just to destroy them (takes too many aircraft); BAI targets were identified and the target lists were sent to Maxwell, but by the time the sorties were flown so much time had elapsed that the units had moved and could not be attacked; sorties have "no eyes" thus they attacked empty hexes and the BAI results were negative; unrealistic results in that destroyed bridges and road junctions had little effect on movement; and units attacked by air on the move or in defensive positions received identical losses.

b. RECCE (Observations 5-10). Air reconnaissance was played extensively during the game even though the intelligence information had to be generated off-line by controller personnel. The observations provide suggestions for improving the techniques that were used.

c. Allocation (Observations 11-13). The comments concern the manner in which the air assets are broken down to the various ground maneuver units to increase the combat power of the supported unit. Much of the discussion refers to ways to improve the transfer of information relative to the allocation of air resources between the army group staff and the appropriate air staff.

2. Intelligence Observations (14-22). Intelligence aspects of CARMAX received a great deal of emphasis during the exercise and produced a large number of varied comments. Most of the comments focused on the amount of intelligence available prior to and during the game. Several comments contained recommendations to make intelligence play more realistic. The other major area of concern addressed intelligence and targeting. Particularly noted was the absence of any deception planning or play.

3. Movement (Observations 23-25). Several factors must be considered when dealing with unit movement in the game. Careful planning must take into account the proximity of units in their garrison locations to their projected assembly areas. The use of airborne forces for a drop must consider where the aircraft are located that will conduct the insertion. Movement can be affected by air interdiction and therefore must be planned for in the game using the Maxwell delay factors if possible.

4. Combat Support/Logistics (Observation 26-27). Players and controllers were critical of the CARMAX game because of its lack of capability to play logistics in a realistic mode. This was especially true of the Maxwell group because they wanted to exercise the logistical impact of air force demands on the ground support system to move munitions from one airfield to another as the nature of the air battle changed and subsequently affected the distribution of munitions. This is considered a serious weakness and should be corrected as a matter of priority.

5. Berlin Brigade Play (Observation 28). The question of how much should the Berlin Brigade be allowed to maneuver needs resolving. Recommendations ranged from ignoring the brigades to attacking them with overwhelming RED forces at the beginning of play. If unattended the brigades could attack Red units in the area and "surround" them, thus by computer rules, allowing triple

losses to Red units.

6. Miscellaneous (Observations 29-31). This group of observations and comments covers a range of subjects not previously listed or dealt with as more than one subject. The observations deal with game organizations, controller requirements, the treatment of non-playing flank units and with the political considerations of chemical weapons employment.

C. THE MODEL. (See Appendix II of ANNEX F).

1. Intelligence (Observations 1-5). Intelligence aspects of CARMAX received a great deal of emphasis during the exercise and produced a large number of varied comments. Most of the comments focused on the amount of intelligence available prior to and during the game. Several comments contained recommendations to make intelligence play more realistic. The other major area of concern addressed intelligence and targeting and cited model weaknesses in timing, information accuracy, air reconnaissance, and structuring of the information.

2. Attrition and Air Support (Observations 6-9). Movement attrition rates are too high for reserve reinforcement forces moving forward long distances. Several difficulties were noted in the way that the game portrays air support. This included similar damage being inflicted on a unit whether it was dug-in or on the move and CAS attrition proportional to ground unit attrition. A major game structure problem was also noted when it was discovered that ground units removed from the game due to combat losses also causes the removal of close air support assets assigned to that unit.

3. Chemical (Observations 10-12). Inconsistencies in the play of the effects of chemical weapons were noted during the game. The algorithm needs to be modified to portray realistic effects. From a control structure standpoint, players recommended that procedures be developed to enable players

inconsistent supply rates of chemical weapons.

4. Command, Control, and Communications (Observation 13). Inadequacy of model to portray loss of C² elements is noted and an approach for corrective action is recommended. Correction of this inadequacy is critical in order to make the game sensitive to deep strikes of high value C² targets.

5. Movement (Observations 14-19). Majority of movement problems were due to the computer movement algorithm routing forces by fastest routes and not by routes that were in zone. Thus forces as large as three divisions were located on one hex in combat with one enemy unit. Another major problem was the lack of the ability to bypass enemy units thus making the use of a ground force for the deep battle impossible. A minor problem was the lack of the ability to deploy forces on the international border prior to hostilities.

6. Artillery (Observations 20-24). The play of conventional tube artillery is severely constrained by the model in that the players do not have the ability to mass artillery to influence a main attack or critical defensive sector. Inconsistencies in the portrayal of Lance units were also noted both in terms of their unexpectedly high loss rate and the low damage rate attributed to conventional missions.

7. Unconventional Forces (Observation 25). Players noted that unconventional forces as a deep striking capability were not modeled. This severely limits the games ability to portray AirLand battle doctrine.

8. Covering Force (Observation 26). Armored Cav Regiments have a capability to cover a front that is larger than the capability provided by the model. Players recommended that ACRs be portrayed by individual squadrons in order to provide this capability.

9. Engineer (Observation 27). Players noted that the game does not allow for a higher movement rate when supported by additional engineer units.

10. Orders (Observations 28-29). The inability to issue a number of orders and have them executed sequentially by the same unit is viewed as a serious drawback. Artillery units in particular should have the ability to queue fire missions and execute them as time permits. When the game is running at high speed many missions can not be executed.

CHAPTER VIII

LESSONS LEARNED

A. GENERAL.

This chapter contains a synopsis of all the lessons learned from the conduct of the entire CARMAX project--from its inception through the wrap-up of the final after-action report which includes this chapter. The lessons have been derived from the written observations and comments generated by the student players and controllers and from the faculty members and visiting observers who made constructive criticisms of the project and the game itself. The lessons learned represent a broad spectrum of observations and comments and can in no way be considered the sum total of all that was learned throughout the conduct of the project. The information presented in this chapter can only serve as a guide for future changes and enhancements to the process that CARMAX represents toward the development of an enriched educational program for the professional military education of senior service college students. The lessons learned discussed in this chapter are divided into two basic groups of comments, those affecting the project itself and those related to the conduct of the war game.

B. THE PROJECT.

1. It was recognized from the beginning of this project that both research groups had to develop this joint theater-level computer-assisted war game using the available models, computer, and processes in being. This was due to the fact that both colleges had on-going programs and curriculum requirements that depended upon the computers and models already in the system supporting the current educational process. CARMAX confirmed that indeed we have two distinctly different models and computers with capabilities designed to support very different and almost unrelated objectives. An appreciation of

the interface problems concerning the data bases, the parameters being played in the models, the disjointed relationships between the parameters, and the timing and sequencing of the information flow between the two groups of players was not thoroughly understood by both sides. This led to numerous minor problems during the organization phase of the project and subsequently during the conduct of the game. The controllers lacked the necessary understanding and familiarity with both games to properly develop and prepare the actions needed to handle the adjustment of factors and parameters between the groups to ensure that the inputs could be processed at the right time and in the right place.

2. In the development of the communications requirements to support the game there was little attention given to planning for the training of the players in the operation of the Silent 700 Electronic Data Terminals which were to be used to transmit most of the message traffic between the player groups. As a result, the burden was placed on the controllers to do most of the message interfacing and coordination between Carlisle and Maxwell. This lack of understanding about how the equipment was to be used and how it worked probably affected the coordination between the appropriate staff personnel (players) at both locations. If this method of communications interface is to be continued and relied upon to support the game, it is essential that all players learn how to use the Silent 700 equipment. The use of the Silent 700 may be an academic issue if Maxwell acquires the Altos system. If this occurs students will have to be familiar with its use for message traffic.

3. Although a milestone chart and program of work was published at the beginning of the development phase of the project, it was soon apparent that the milestones could not always be met. Most of the delay could be directly traced to the fact that many of the members of the research group were yielding to demands on their time resulting from "outside expectations", including

course requirements, seminar sports activities, and Air Force Sports Day preparation. In some instances, some of the student researchers kept waiting for someone to tell them what to do even though guidance in such a project of this could not always be given. This particular lesson learned should be a non-factor in the next iteration as a learning curve has now been established.

4. Although the initial organization of the project indicated that a large number of students would be needed to develop this project and war game, it soon became apparent that the total number of students involved should be reduced. With such a large group the coordination of activities between each student and the assignment of tasks on a burden sharing basis became a difficult process. Some students were overloaded at times while others were "underemployed" in the development process. It became necessary toward the end of the project to try and balance the workload by the assignment of after-action report duties but this did not always meet with success. With a large group, problems were also encountered in arranging mutual agreeable meeting times such that all players could attend. This was a major problem during Seminar Configuration C. Once the elective phase of the course started, the problem should not have existed since CARMAX was a scheduled elective. However, the course was scheduled for Monday mornings and other mandatory school assignments were scheduled for that period. The need for more detailed coordination in scheduling is apparent. Breaking the group into sub-groups would be the only effective way to manage the project and tasks.

5. The play of the game was constrained to the Air War College's schedule. This created problems at Carlisle since the pre D-Day play had to be conducted during the week of 28 March, the first week of the electives. There was considerable confusion over what requirements had priority, the electives or CARMAX. The electives clearly were to have priority during the week of the

learn but some of the students were key members of the CARMAX team and felt they could not miss this phase of the game play. Thus students were missing some of the critical early lessons in their electives and some were absent from the CARMAX pre D-Day play. It is now apparent that CARMAX needs to be scheduled so as not to conflict with the first week of electives. Some students felt that CARMAX should be conducted prior to the electives so that electives which have a bearing on their next assignment would not be missed. This problem of missing early elective lessons could be mitigated by delaying the start of the game until later in the Advanced Course phase. However, such a delay must be very closely coordinated with the Air War College since they graduate several weeks before the Army War College and their period set aside for play is directly affected by on-going core curriculum classes.

6. Although several test periods were forecast in order to identify the areas of weaknesses in the game during the game development phase, only one such period actually produced any beneficial observations and recommendations. This was mainly due to the lack of coordination between the project managers and the players at both schools. The test periods must be scheduled and locked into the sequence of events just as firmly as the actual conduct of the game. Had the test periods been conducted as called for, there would have probably been less problems during the game itself with communications and coordination. Another drawback of the test was that the teams were preoccupied with determining whether the communications links were working adequately. The players deliberately did not use the initial moves which were planned for the real play of the game. As a consequence the players did not uncover player type problems during the tests. In other words, they were acting more in the role of controllers and never made the transition to player until the actual game was played in April.

10. The simulated intelligence that was needed to support the game in the game was not developed until after the game commenced. This support activity is absolutely necessary to provide realism and to build the proper situations for the conduct of the game play. The canned or preplanned messages must be developed in a logical and well thought-out fashion to ensure that the commanders and staff receive the proper information upon which they can develop their plans and concepts of operations to support their overall campaign objectives.

11. THE GAME.

12. One of the basic objectives of the CARMAX project was to develop the game such that the Airland Battle Doctrine could be exercised. During the initial stages of development of the game, and during the pre-hostility play that preceded the war fighting portion of the game some effort was made to make use of the doctrine by the commanders and staffs. MG Donald R. Morelli, Deputy Chief of Staff of Doctrine, HQ, TRADOC, observed the play of the game. He offered a number of comments which would enhance the game and add to its sophistication in future years. General Morelli observed that the players on the Blue Team did not fully generate the following interrelated actions of the Airland Battle Doctrine:

- Development of an overall campaign plan
- Development of an intelligence plan of the battlefield from initially and throughout the conduct of the game to support the campaign plan.
- Development of a sensor management plan
- Development of a deception plan
- Consideration for the use of Special Forces

13. The exercise of the Airland Battle Doctrine was not the primary goal of the CARMAX project and the game for the first iteration, these shortcomings are

fully recognized and appreciated. However, since they have been identified the next excursion of CARMAX can directly consider which enhancements can be incorporated. A major problem is the amount of time required to do this comprehensive planning. Regardless, one thread remains common and that is it is absolutely vital to the play of the game that the players thoroughly understand FM 100-5 and what is expected of them relative to successful implementation of the doctrine. Given all of the above, it is imperative that the U.S. Army accord the highest priority to the articulation and promulgation of doctrine for echelons above division (EAD) and echelons above corps (EAC). Without such a follow-on effort it will be difficult or impossible to implement the rather broad and general doctrinal guidelines set forth in FM 100-5.

2. During the conduct of the game, as a result of some preliminary coordination with the Office of the Assistant Chief of Staff, Intelligence, the Red Team had the benefit of a seasoned Soviet Analyst and war gamer who was well versed with Soviet Doctrine and Concepts of Operation. Mr. John Sloan served as the Political Advisor to the Red Team players. It became quite apparent during the play of the game that an understanding of the Soviet/Warsaw Pact Doctrine and concepts of operations is extremely beneficial to a realistic play of this type of war gaming exercise. The effect of a well organized Red Team and their successful employment of the principal of mass was that the Blue Team never seemed to be able to take the offensive advantage away from the Red Team.

3. In addition to the problem of exercising the AirLand Battle Doctrine vis-a-vis Soviet/Warsaw Pact Doctrine there was a conceptual problem with the Carlisle gamers (and some Maxwell players) about how the Air Force conducts operations. Although each of the Carlisle players were given a briefing on the air force planning and execution cycle which relates all the planning and

implementation factors to operational support of the AirLand Battle, there was a lack of understanding of how those factors are coordinated during the course of wartime operations at EAB and EAC. The result was there was insufficient dialogue established between the appropriate commanders and staffs at the critical decisionmaking times in the play of the game. There was too much of a reliance on the idea that "they will know what to do at the right time". If the Army and the Air Force are to ever get this mutual understanding of each other's problems and the way in which they both do business, it will require such exercises as CARMAX. The design of the game stresses the need for such coordination and offers every opportunity to develop the proper interface between the green and the blue suiters. Once a CARMAX game is developed which uses a common data base the interface and coordination problems should automatically surface and not require external prompting.

4. After playing the game for about 2 days, it became evident that each set of commanders and staff both on the Blue Team and the Red Team need their own set of maps for planning and operational purposes. The congestion at the single map board was just too difficult to handle. In addition, the maps used to support the play of the game did not facilitate the conduct of operations necessary to consider all aspects of the AirLand Battle Doctrine, especially the deep planning factors. The need for greater map coverage concerns mainly the Blue Team, but some added coverage for the Red Team would assist in their deep planning efforts.

5. The use of two distinctly different models and computers did have several drawbacks but the play of the game was conducted with a large measure of success inspite of these difficulties. However, if there is to be a firm basis for understanding the AirLand Battle Doctrine and how the air and the ground forces are to operate in a joint arena there must be steps taken to

reduce the impact of this disconnect between the two sources of support. It is essential to have the same data base which identifies the same units on both sides; common factors and game parameters and attrition algorithms are necessary; key relationships between commanders and staffs must be identified and thoroughly understood; and the sequencing of information and direct access to data must be developed and facilitated during the conduct of the game. In addition the length of time associated with the combat scenario must be increased if both sides are to develop a full appreciation for sustaining a conventional war in the Central European Theater. The current 5 day time restriction just does not allow enough time to consider all the courses of action which might address breakthroughs, large scale reinforcements, delay of second echelon forces, and other points of major influence in the longer scenario.

5. The influence of logistics in this exercise was nonexistent. This was due in large part because a modification in the model had removed the capability to play logistics in the game. However, the demands for logistical support from the Air Force in the Central European Theater is a reality that must be dealt with as it will become a major factor influencing the decisionmaker in the future. There are only so many aircraft available to move equipment and munitions in the theater and the imbalance in the distribution of munitions which the Air Force will undoubtedly face as the war progresses will require that the Army assist in moving maldistributed assets. This will have a direct impact on the availability of transportation assets to move ground support munitions at critical times. These factors must be considered by the ground commanders as they plan for future operations and allocate resources to support their courses of action. With the logistics module available in the CARMAX model this particular factor can be addressed and played in the game. The

impact and influence of reinforcements on the overall conduct of the war game. This is a major point of concern in the development of CARMAX.

6. Another major point of concern in playing the game is the understanding of the impact that reinforcements will have on the flow and timing of operations. To achieve a firmer grasp on how these reinforcements will be introduced into the battle area, there must be more consideration given to the impact of strategic mobility factors. There was an attempt in the earlier stages of game play to consider the impact of strategic mobility by introducing the FAST model into the play of the game. However, this particular aspect of the game did not get the proper amount of attention needed to fully address the manner in which the model could contribute to a fuller understanding of how strategic mobility will influence the conduct of war in the joint theater arena. More study and testing is needed if this particular aspect of the game is to receive proper consideration in the overall development of the exercise. The FAST Model has tremendous potential in supporting the CARMAX effort and it should receive more detailed examination for inclusion in the war gaming exercise.

PART D

CONCLUSION

CHAPTER IX

SUMMARY AND RECOMMENDATIONS

A. GENERAL.

The fundamental mission of the United States Army is to deter war. However, should conflict occur the primary mission is to fight and win the land battle wherever and whenever necessary. The AirLand Battle Doctrine explains how we must conduct campaigns and battles to successfully accomplish this very important mission. This doctrine emphasizes the operational inter-relationships of maneuver, firepower, and movement; the necessity for combined arms warfare; and the requirements for cooperative actions between sister services and allied forces. The doctrine is firmly founded on the principals of war, the conditions of modern battle, and the fundamentals of military professionalism and leadership as outlined in FM 100-1. With the introduction of this operational doctrine, the Army faces one of its greatest periods of change in history as the implementation process begins in organizational and doctrinal processes directed toward increasing the probability of winning future conflicts in which the Army plays a major role. If we are to be truly successful in implementing this doctrine and in developing a thorough understanding of the decisionmaking processes that are necessary to achieve the accomplishment of our mission, the professional military education of our officer corps must include the opportunity to study and analyze every aspect of the doctrine and its influence on command decisions. It is for such a reason that CARMAX was developed -- to serve as a medium through which the AirLand Battle Doctrine and all the inter-relationships of the doctrine could be addressed and exercised in a military academic environment.

B. SUMMARY.

1. CARMAX 83 was a joint theater-level computer-assisted war gaming

exercise which was conducted as a student research project and an actual course for the Academic Year 1983. The objective of the project was threefold: to establish and test joint theater-level war game concepts and procedures, to design and develop a joint war gaming exercise for simultaneous play between the Air War College and the United States Army War College; and to exercise the AirLand Battle Doctrine. To this end, a full scale exercise was developed and exercised by a select group of students at both locations. Key command and staff positions were played at the appropriate decision levels for the successful prosecution of a war in the European Central Region. In the final analysis the project and the exercise were an unqualified success as the overall project objectives were achieved. This has led to the development of a guide directed solely toward the play of CARMAX (see Appendix I to ANNEX C).

2. Inherent in this type of research project was the need to assess the areas in which improvements could be made to strengthen the exercise and to improve its relevance toward enhancing the professional military education of the students playing the game. Throughout the conduct of the project and the play of the game, the researchers were continually assessing the impact of the project and how it would influence future curriculum efforts in educating the professional Army officer. The following areas were identified for upgrading and added emphasis in subsequent applications of the CARMAX exercise:

- Greater focus on the development of a campaign plan and the integration of intelligence planning of the battlefield (IBP), sensor management plans, suppression of enemy air defenses, incorporation of deception plans, and the use of special forces operations in intelligence gathering and direct action roles.

- Improve the understanding of the Air Force's and the Army's concepts of operation through improved coordination and dialogue between sup-

porting Army/Air Force staffs and command levels.

- Stress the "macro" management aspects of the operational level doctrine versus the tendency toward the "micro" management of tactical decisions.

- ___ Thorough integration of the reconnaissance and offensive air support in the implementation of the campaign plan.

- Develop a greater appreciation for the impact and influence of logistics on the successful application of war fighting capabilities.

- Improve the communications interface necessary for support of war gaming exercises conducted between remote locations.

- Facilitate the application of all aspects of the AirLand Battle Doctrine.

3. The problem areas identified above in this project and as a result of playing a war game also signal the need for some positive action to be taken in changing the common overview to address key subject areas for enhanced student learning through study and assessment. These principal subjects or topics are as follows:

- Study of the NATO military organization and structure to identify strengths and weaknesses; to develop an understanding of the complexities of the allied command structure; and to assess the inter-relationships of the various allied commands vis-a-vis military commitments to those commands by the United States.

- Study the essence of campaign planning and its role in the implementation of doctrine and concepts of operation at echelons above corps through the planning, coordination, and execution cycle.

- Greater emphasis on developing an understanding of the AirLand Battle Doctrine and its impact on force structuring, force deployment, theater

operations, plan integration, and its relationship to the strategic and tactical levels of war.

-- Expanded study of Soviet military doctrine and concepts of operation to develop a broader appreciation for the characteristics that influence this doctrine and its response to applied United States military doctrine.

C. RECOMMENDATIONS.

The successful execution of CARMAX 83 has confirmed the need for a joint war gaming exercise to study key issues of the AirLand Battle Doctrine and its related decisionmaking processes (see Appendix II to ANNEX G). CARMAX has demonstrated its potential toward enhancing the professional military education of the students attending senior service colleges. Therefore, it is highly recommended that:

1. The CARMAX project be continued and expanded with the ultimate goal toward designing an exercise which adequately and appropriately addresses the issues promulgated in FM 100-5 and which can be incorporated into the core curriculum at both colleges.

2. Action be taken by the appropriate departments to fully incorporate changes in their courses of study in the common overview so as to address the subjects and topics identified in paragraph B3 above.

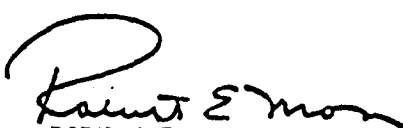
ANNEX A: HISTORICAL PERSPECTIVES

22 September 1981

MEMORANDUM FOR RECORD

SUBJECT: Joint War Game

1. On Tuesday, 22 Sep 1981, Colonels Dean A. Pappas, Air War College, and Robert E. Moss, Army War College, met and discussed initial procedures toward establishing a joint program of instruction in theatre war gaming.
2. As a preliminary step, the following tasks were developed. Each institution will determine the answers to the tasks and discuss them NLT 31 Dec 1981. The next step will be to incorporate the agreed upon tasks into a 5-year development program.
 - a. Develop a set of learning objectives for the Army and Air War Colleges which will be mutually satisfied by a joint Program of Instruction (POI) that includes a simultaneously played war game.
 - b. Develop a POI to satisfy the objectives.
 - c. Determine time available at the respective war colleges for the POI and particularly the war game.
 - d. Determine who will play what roles at each institution.
3. It was agreed that Colonel Moss and a representative from the Department of War Gaming would visit the Air War College in October to become more familiar with the Air War College model.
4. The point of contact (POC) at the Army War College is Colonel Robert E. Moss, AUTOVON 242-3808. The POC at the Air War College is LTC Dean A. Pappas, AUTOVON 875-7831.


ROBERT E. MOSS
Colonel, Infantry
Director, Contingency Planning


CONSTANTINE A. PAPPAS
Lieutenant Colonel, USAF

TAB A

A-1

Appendix I to ANNEX A

DISPOSITION FORM

1. This form is to be used to record the disposition of documents.
2. It is to be filled out by the person who is responsible for the document.

ARCAC

Joint War Game with the Air War College

XXTRNG Secy/Cois

FROM Cnmm, DMSPO

DATE 26 Sep 1981 CAT 1

COL Stewart/mcc/3417

TO Commandant

1. PURPOSE. To provide information concerning the development of a joint war game with the Air War College.


2. DISCUSSION. a. LTC (COL Selectee) Dean Pappas, Director, Combined Air Warfare, Air War College visited the Army War College 21-23 September to observe the use of wargaming and to begin work on the development of a joint war game.

b. On 22 September, LTC Pappas and COL Moss, DMSPO developed an approach to reach the objective. A copy of their MFR is attached at Tab A.

c. Both War Colleges will be working this year to develop the mechanics for the conduct of the war game. The key is not how to do it but to fix the objectives that meet the educational requirements of each institution. Next year, a joint war game would be used in the advanced course phase. A full-scale joint war game simulation would be incorporated into the AY 84 core curriculum.

3. RECOMMENDATION. NONE. At some point of time during this year, the Commandants of each institution will need to meet, review the program and approve the joint objectives for the conduct of the program.

1 Incl
as


JOHN P. STEWART
Colonel, FA
Chairman

OF:
DMSPO
Secy/Cois
DA
Cnmm, DMSPO
Cnmm, DMSPO
Cnmm, DMSPO

DA FORM 2496

REPLACES DD FORM 96, WHICH IS OBSOLETE.

DA FORM 2496-100-000-000-000-000

A-2



DEPARTMENT OF THE ARMY
US ARMY WAR COLLEGE
CARLISLE BARRACKS PENNSYLVANIA 17013

ATTENTION OF

AWCAG-A

14 September 1962

MEMORANDUM FOR CHMN, DEPARTMENT OF WAR GAMING

SUBJECT: Joint Army/Air War College Game

1. During a telephone conversation on Friday, 10 September with Colonel Dean Pappas of the Air War College, the following points were discussed.

a. A memorandum is needed which outlines the objectives for the joint war game. It was suggested that the objectives include the following points.

(1) Establish, test, and evaluate the concepts and procedures for the conduct of a joint War College War Game.

(2) Instruct the participants at both institutions in the conduct of war gaming exercises and in the decisionmaking processes necessary for the conduct of joint operations.

b. Colonel Pappas recommended that the Red/Blue Air Order of Battle be furnished by the Air War College and that the Red/Blue Land Order of Battle be produced by the Army War College. The smallest unit to be played would be divisions/separate brigades.

c. Each target needs to be identified with a three-digit code to facilitate input capability in running the computer programs.

d. He suggested that the "war" run for 12 days with the Army beginning build-up at D-4. His concern is that the Air Force can actually do very little toward "combat" until cross-border constraints are lifted (D-day). It would, however, allow both Army and Air Force to play a portion of the build-up phase.

e. Proposed name for the joint exercise is CARMAX 83--CAR for Carlisle and MAX for Maxwell.

2. Colonel Pappas also discussed several technical issues which must be resolved. He is concerned about the capability for a 1 to 1 mapping of the hexes to the Cartesian Coordination System grid used at Maxwell. He also desires a copy of the configuration control manual which will allow them to run the MTM on their Honeywell. He wants to be certain that the version of the MTM selected as the baseline model is the same at both locations.

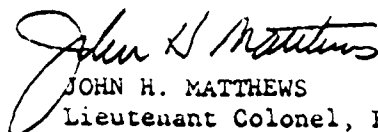
14 September 1961

SUBJECT: Joint Army/Air War College Game

3. I suggested that Colonel Pappas and Major Ken Anderson, Air War College Project Officer, meet with Lieutenant Colonel Ed Tezak and myself immediately following the MTM User's Conference to hash out the basis of a flexible, continuing Memorandum of Understanding for the conduct of the joint game. I also recommend that projected student participants for the war game be allowed to attend and contribute to the initialization of the efforts.

4. Colonel Pappas will be sending me copies of student research proposals and a breakdown of student responsibilities in the development of the war game. Additionally, the period of play is tentatively scheduled for the period 26 March - 6 April.

5. I assured Colonel Pappas that I would keep him informed as to the progress we make in this project.



JOHN H. MATTHEWS

Lieutenant Colonel, FA

Operational Simulations Analyst

Simulations and Gaming Branch

CF:

COL Franz

LTC Tezak

Mr. Roley

Mr. McClintic

COL Pappas

2

H-4

ANNEX B: PREPARATION



DEPARTMENT OF THE ARMY
US ARMY WAR COLLEGE
CARLISLE BARRACKS, PENNSYLVANIA 17013

REPLY TO
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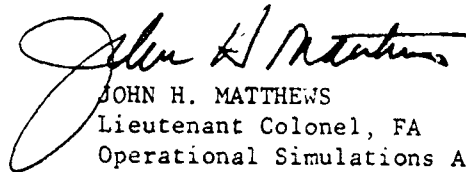
AWCAG-A

27 August 1982

MEMORANDUM FOR RECORD

SUBJECT: Projected Advanced Courses - DWG

1. On 27 August 1982, Colonel Macedonia appointed the undersigned as the coordinator of the Advanced Courses for the Department of War Gaming.
2. The following four courses and course coordinators were selected by Colonel Macedonia.
 - a. Political Military Simulations on Terrorism - LTC Andy Gothreau
 - b. War Gaming in Contingency Planning - COL Bob Moss
 - c. Joint War Gaming with the Air War College - LTC Ed Tezak and LTC John Matthews
 - d. Military History and the Theory of War - COL Wally Franz
3. This information will also be forwarded to LTC Fred Bangasser, Dir, IFP and Advanced Courses, DAA.


JOHN H. MATTHEWS
Lieutenant Colonel, FA
Operational Simulations Analyst
Simulations and Gaming Branch, DWG

CF:
COL Macedonia
LTC McGurk
COL Moss
COL Franz
LTC Gothreau
LTC Tezak
LTC Bangasser

Appendix I to ANNEX B



DEPARTMENT OF THE ARMY
US ARMY WAR COLLEGE
CARLISLE BARRACKS, PENNSYLVANIA 17013

REPLY TO
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AWCAC-A

1. DEPT. 1. 1. 1.

MEMORANDUM TO AY 53 RESIDENT STUDENTS

SUBJECT: Military Studies Program in War Gaming

1. The Department of War Gaming requires 36 student volunteers to assist with the NATO War Game and the Corps War Game. One advanced course credit will be given. This Military Studies Program in War Gaming will begin in October and run through December, for a total of 10 sessions of 3 hours each. Participants will be taught to operate the ALTOS Microcomputer in order to assist their seminar group in the conduct of the war games. No previous experience with computers or war gaming is required.

2. Students will be selected on a first-come, first-served basis. Those interested may contact Colonel Franz, Simulations and Gaming Branch, Room B107 or call extension 3634 for additional information.

3. A meeting will be held on 8 September 1982 at 1300 hours in Wil Wasncoe Auditorium to discuss this program.

FOR THE COMMANDANT:

William T. Leggett, Jr.
WILLIAM T. LEGGETT, JR.
Colonel, Infantry
Secretary/Chief of Staff

DISTRIBUTION:

Appendix 1. to ARMY 1



DEPARTMENT OF THE ARMY
US ARMY WAR COLLEGE
CARLISLE BARRACKS, PENNSYLVANIA 17013

REPLY TO
ATTENTION OF

AWCAG-A

5 OCT 1982

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Military Studies Program--Joint Army/Air War College War Game

1. You have been selected for participation in the Joint Army/Air War College War Game to be conducted by the Simulations and Gaming Branch of the Department of War Gaming. This war game exercise represents a major step forward in the efforts of both the Army and the Air Force to better understand the complex nature of the decisionmaking process of commanders in the conduct of the air/land battle.

2. Due to the fact that this project is a subject in the Military Studies Program, each of you will receive credit for one advanced course.

3. An initial organizational meeting will be held on 18 October from 1330 to 1500 in Bliss Hall. However, you may contact COL Franz or LTC Matthews at extension 3634 for additional information prior to the meeting.

FOR THE COMMANDANT:

William T. Leggett, Jr.
WILLIAM T. LEGGETT, JR.
Colonel, Infantry
Secretary/Chief of Staff

DISTRIBUTION:

LTC T. H. Sellers	LTC W. E. Wessner	LTC E. G. Tezak
LTC W. C. Burns	LTC D. H. Decker	LTC J. W. Murray
LTC J. W. Cummings	LTC A. Di Caprio	LTC J. A. McCloud
COL H. I. Buckles	CDR W. E. Wells	LTC D. H. Volta
	COL W. C. Page	LTC E. B. Morrison
Mr. D. G. Dixon	LTC R. J. Castleman	LTC F. M. Pearce
LTC R. E. Entlich	LTC W. G. Carter	

CF:

DComdt

Dir, DAA

Cnmr, DMSPO

Appendix III to ANNEX B

and a special working group (special working group) will:

1. The special working group will:

2. The special working group will:

a. Meet for a hour to meet "B" elective period time and the meeting.

b. The committee will CMC and CMC action of the elective period time and the meeting for A/MC and the meeting for the elective period time and the meeting for the elective period time.

c. Participate in the Joint T&E as a member of a 12-14-15 team.

d. Analyze the conduct of the exercise.

e. Prepare a detailed after-action report on how the exercise was conducted and whether or not it is feasible for a core curriculum exercise.

3. Student Requirements:

a. Number of students: Five

b. Background:

- Two USAF

- Three USA

One should have operational exercise or wargaming experience, experience helpful.

c. Payoff: four credits total to include writing requirement.

- 1 elective credit for pre-game planning and coordination

- 1 elective credit for participating in Joint T&E game (elective credit)

- 2 research/writing credits for analysis and after-action report

d. Students selected must enroll in the Joint Wargaming Elective during the elective period.

1. The special working group will:

2. The special working group will:

3. The special working group will:

4. The special working group will:

1. Atch

2. Memo for Record

Appendix 1 to A/MC

Memo for Record

5. Aug 83

Subject: Joint Carlisle/Maxwell Wargame 83 (CARMAX 83)

1. Re: Discussions between Col Ray Macedonia (Carlisle - Head of Department of Wargaming) and me concerning the Joint Carlisle/Maxwell Wargame to be played 28 Mar - 15 Apr 83.
2. The objectives of CARMAX 83 are two fold. First, to establish and test concepts and procedures for conducting a joint, theater level wargame from remotely located sites; and second, to teach participants at both schools the types and the consequences of decisions made at the theater and component command level in a combined environment. A truly joint exercise can draw from the expertise of each war college to more accurately depict the air and ground doctrines in a joint/combined scenario as the respective services view them. Finally, a remotely located joint exercise can better teach the critical role of comm in supporting command and control by requiring players to use comm links for task integration in the air/land battle.
3. Both Carlisle and Maxwell will form student study teams sponsored by the Dept of Wargaming and CRES respectively. The Carlisle point of contact is Lt Col John Matthews (augmented by Lt Col Ed Tezek). The CRES point of contact is Maj Ken Anderson. Names of Air War College students are attached. The study groups are responsible for designing, planning and writing procedures to execute the exercise and will enroll in the third term elective (Maxwell) or an Advanced Course (Carlisle) to play the wargame. They will also write an after-action report which describes how the exercise was planned, how it was actually played, lessons learned, and recommendations for improvements.
4. The Air War College will offer a third term elective for 12 students who will play AAFCE and ATAF roles. Carlisle will offer an Advanced Course for 12 students who will play AFCENT and Army Group roles.

C. A. Pappas

C. A. PAPPAS, Colonel, USAF
EDW

1 Atch
CARMAX 83 Student Study Group

CANADA - DEPT. OF DEFENSE

1. Lt. Col. Milt. Colman	(USAF)	Box 3	SEM 1
2. Lt. Col. Hugh R. Baydon, Jr.	(USAF)	Box 47	SEM 1
3. Col. Bartley W. Carey	(USA)	Box 73	SEM 1
4. Col. Emmett F. Johnson	(USA)	Box 110	SEM 1
5. Lt. Col. Frank H. Mayer	(USA)	Box 149	SEM 1
6. Maj. Ken Anderson	(USAF)	AWC/EDW	AUTOVON 874-5051
**7. Maj. Tony Stojak	(USAF)	AWC/EDW	AUTOVON 874-7551

* CRES Advisor

** CASC Advisor

210X/10/11/11



AWCAG-A

REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
US ARMY WAR COLLEGE
CARLISLE BARRACKS, PENNSYLVANIA 17013

30 September 1982

MEMORANDUM FOR CHAIRMAN, DEPARTMENT OF WAR GAMING

SUBJECT: Status Report--Joint Army/Air War College War Game

1. A meeting was held with COL Pappas, MAJ Anderson, LTC Tezak, Mr. Roley, COL Franz, and me on 29 September 1982 to discuss and finalize some actions directed toward the conduct of the CARMAX 83 Joint Army/Air War College War Game.
2. COL Pappas and MAJ Anderson presented an overview of the actions that have been under way at Maxwell toward the development of the joint game. Attached at Tab A is the general outline of their efforts to date. Additional discussions centered on the potential problem areas identified with the play of a game of this nature, where the players are at two distant locales.
3. LTC Tezak and I presented our views as to the organization of our "gaming group." (List at Tab B). We proposed that the student group be responsible for the complete development, implementation, and conduct of the joint exercise. This responsibility and accompanying actions necessary to implement the war game would be of such a rigor, that they would satisfy the writing requirements needed for the Military Studies Program. COL Pappas agreed with our assessment and proposal, as it also meets their requirements. It will be the responsibility of the faculty to provide the guidance and direction for the student groups.
4. The following issues were identified as areas in which the students would have to work toward mutual agreement.
 - a. The communication requirements to conduct the game.
 - b. The scenario to be played--Maxwell will develop Red/Blue Air Order of Battle and USAWC will provide the Red/Blue Land Order of Battle.
 - c. The type and quantity of information flow.
 - d. The sequence and timing of the overall play of the game.
5. Both groups agreed that the following schedule would be adopted because of the curriculum requirements and timing problems.
 - a. 21-30 Mar--Preliminary planning and actions associated with the air/land build-up, prior to hostilities, i.e., reinforcements, logistics, and unit build-up

Appendix V to ANNEX B

AWCAC-A

5105201 Status Report--Joint Army/Air War College war game

to support increased defensive posture. These actions to be taken during academic free time.

5. 4-8 Apr--Conduct of actual war gaming exercise. Played from 0600 to 1630 hours daily until the game is completed.

6. COL Pappas and MAJ Anderson agreed to support a visit by LTC Tezak, Mr. Roley, and me to observe and play the Maxwell game. This action is necessary to develop a better understanding of how this game operates and to determine potential problem areas for subsequent resolution by the student group. This visit will take place 13-15 October 1982. Prior to the visit, we will analyze the supporting documentation which they have given us for review.

7. LTC Tezak and I held separate discussions concerning the organization and division of responsibilities and actions for our group of students. He felt that the efforts required to develop, implement, and operate this war game were of such a magnitude that the entire group could be subdivided, with each being responsible for selected portions of the effort. It is our intention, subject to your approval, to give subgroups the responsibilities listed below.

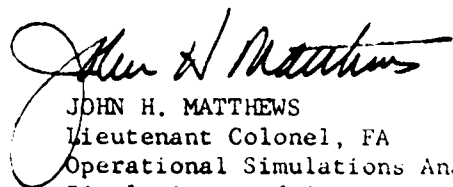
a. One group will be assigned the task of developing all the plans and documentation necessary for the conduct of the war game. This includes game handbooks, directives, scenarios, orders of battle, etc.

b. One group will be responsible for developing the joint communication requirements to support this game. This includes the actions necessary for implementing their communication plans.

c. One group will be tasked to prepare the after action report, complete with proposed changes and recommended enhancements for the future.

The documentation in completing each of these tasks would satisfy the writing requirement of the Military Studies Program. In addition, LTC Tezak would serve as the group coordinator.

8. An initial group meeting will be held 5 October at 1230 hours in room 0400 to outline the program for the group and to answer questions which they may have concerning the conduct of the game and the nature of the course in relation to the Military Studies Program.


JOHN H. MATTHEWS
Lieutenant Colonel, FA
Operational Simulations Analyst
Simulations and Gaming Branch

CF:
COL Franz
LTC Tezak
Mr. Roley
Col. Pappas, Air War College

2 B-E

18 October 1982

ARMY/AIR WAR COLLEGE
JOINT WAR GAMING EXERCISE

C A R M A X 83

SUBJECT: Points of Information--Problem Areas

1. A visit was made by three USAWC representatives to the Air War College (AWC) during the period 13-15 October for the purpose of discussing the conduct of the Joint War Gaming Exercise "CARMAX 83" with the AWC student/faculty group charged with its development.

2. The following specific problem areas or areas of interest were identified for mutual consideration and resolution.

a. At Inclosure 1 is a flow chart showing the initialized view of how the two groups will interact and the current flow of information of their individual games.

b. At Inclosure 2 is a chart which shows the timed sequence of play. This is subject to modification by both groups.

c. The actual subset of gaming activities and responsibility is proposed as follows:

BLUE AIR vs. RED AIR.....DCA/TWX
BLUE AIR vs. RED AFLDS.....OCA/TWX
BLUE AIR vs. RED ARMY.....CAS/MTM
RED AIR vs. BLUE AFLDS.....OCA/TWX
RED AIR vs. BLUE ARMY.....CAS/MTM
RED ARMY vs. BLUE ARMY.....MTM
RED ARMY vs. BLUE AIR.....CAS/MTM - INT/TWX
BLUE ARMY vs. RED AIR.....CAS/MTM - INT/TWX
RECCE.....TWX/MTM

As part of this action, attrition reduced sorties information will be passed via controllers, as will interdiction damage information to degrade unit effectiveness. All helicopters will be played by MTM. Interdiction priority list will be passed by Carlisle to Maxwell.

Appendix VI to ANNEX B

d. The scenario will be the AFCENT scenario as played last year (1:500,000 map) with the Order of Battles developed to support both Red/Blue ground and Red/Blue Air. The level of play follows:

USAWC

SACEUR (ARMY) (CONTROLLER)
AAFCE/ATAF (STUDENTS)
ASOC/ATOC (CONTROLLER)

AWC

SACUER (AIR) (CONTROLLER)
AFCENT/AG (STUDENTS)
CORPS/DIV (CONTROLLER)

e. Communications initially have been identified as requiring at least three portable computer terminals linked by telephone lines to Maxwell, Honeywell Computer, three additional telephones (one each for Red, Blue, and Controller), and one facsimile machine for hard copy message/maps.

f. The following list of areas need to be addressed in detail by the student groups.

- how to play weather;
- what information will be passed;
- how to play pre-hostility phase;
- how to play logistics--especially army support of Air Force requirements;
- organization of game;
- development of manuals, handbooks, guides, etc;
- exchange of students prior to conduct of April exercise.

3. It has been proposed that AWC students (5) visit USAWC in November to coordinate development of the game and plan future joint actions. It is envisioned that a debugging exercise be conducted in January followed in February by a dress rehearsal.



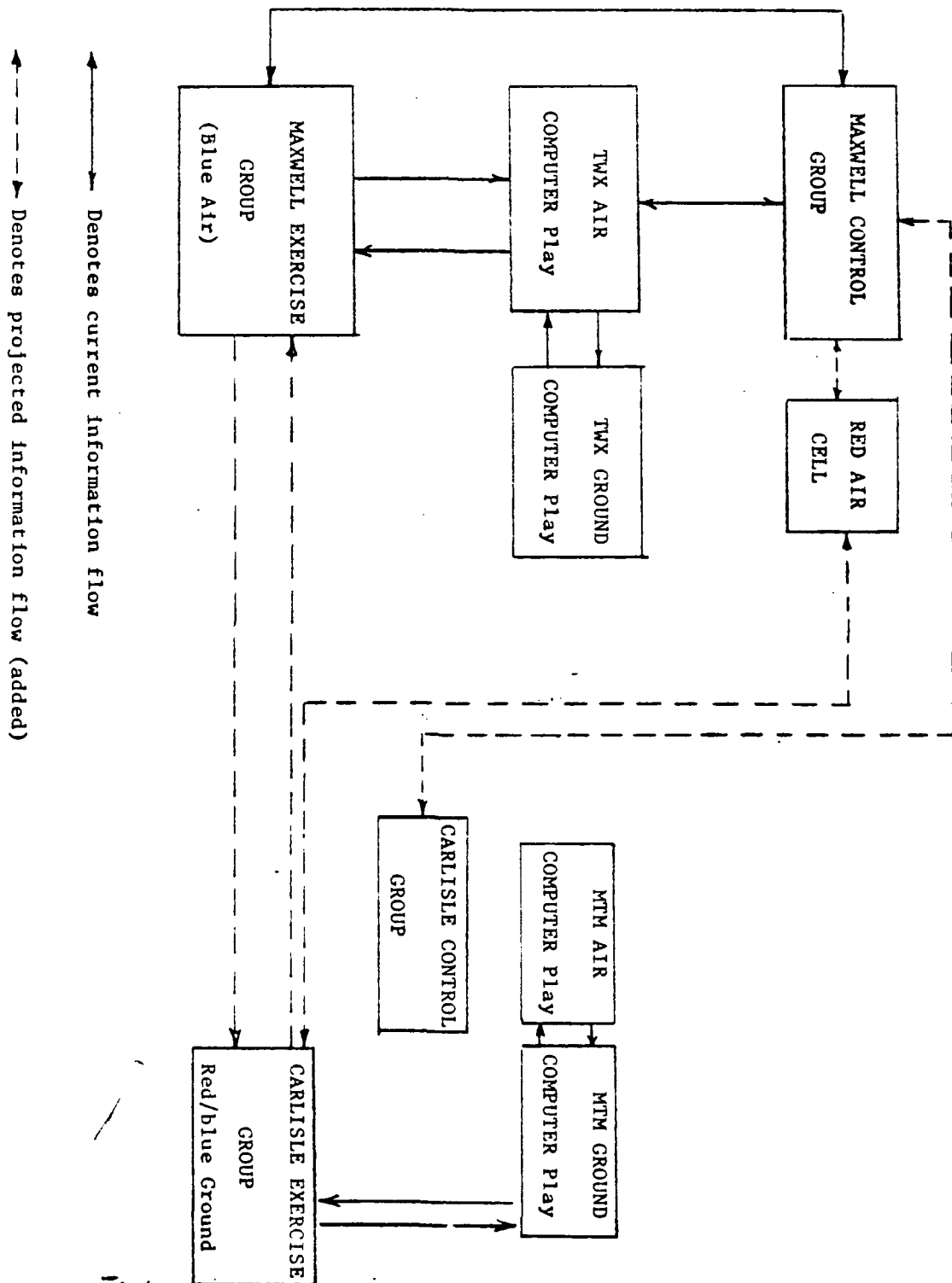
EDWARD C. TEZAK
Lieutenant Colonel, CE
Project Manager



JOHN H. MATTHEWS
Lieutenant Colonel, FA
Study Adviser

OF:

Each Student
Chmn, DWG



Maxwell
File

0700 0800

1200 1300 1400

1630

1800

2200

AAFCF Planning

ATAF Planning

(1)

TXM Runs

DATA Returned

(2)

Carlisle
File

0800 0900

1330

1500

1700

War Play

Battle Planning

(3)

(4)

(5)

NOTE: (1) Must receive Corps sortie distribution for ATAF planning for TWX model.

(2) FRAG info loaded into the TWX computer file for access by Carlisle.

(3) Retrieve the FRAG info from the Maxwell Honeywell computer.

(4) Submit logistics information and the ground Order of Battle attrition to Maxwell.

(5) Submit the following day's air support request to Maxwell.

Air War College (AWC),
Maxwell Air Force Base, AL 36112

United States Army War College (USAWC),
Carlisle Barracks, PA
Academic Year 1982-83

Memorandum of Agreement

For

Carlisle Maxwell Joint War Gaming Exercise-1983

(CARMAX 83)

FORWARD

CARMAX is an academic war gaming exercise for the study of joint/combined employment doctrine. The 1983 project evolved as a student research effort to determine its feasibility, and identify and demonstrate the required mechanics for conducting the exercise. CARMAX's ultimate objective is to serve as the vehicle through which participants from the United States Air Force Air War College (AWC) and the United States Army War College (USAWC) can examine how combat forces from both services can be employed in concert during joint/combined military operations. Especially important is that the warfare principles, concepts and doctrine, constraints of both services, which impact on our ability to jointly project war-fighting powers, be clearly understood by participants from both colleges.

C. A. PAPPAS
Colonel, USAF
CRMS Program Manager
Air War College

RAY MACEDONIA
Colonel, USA
Chairman, Department of
War Gaming
US Army War College

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CARMAX 83

Abbreviations and Acronyms

AAFCCE	Allied Forces Central Europe
ACE	Allied Command Europe
AFCENT	Allied Forces Central Europe
AOB	Air Order of Battle
ASOC	Air Support Operations Center
ATAF	Allied Tactical Air Forces
ATOC	Allied Tactical Operations Center
AWC	Air War College
BAI	Battlefield Air Interdiction
BLUE	Allied Forces
CARMAX 83	Program name for the development and implementation of a Joint Army/Air War College Wargame
CAS	Close Air Support
CENTAG	Central Army Group
CINCENT	Commander in Chief Central Europe
CINCREDAIR	Commander in Chief Red Air Forces
CINCREDLAND	Commander in Chief Red Land Forces
COMAAFCCE	Commander Allied Air Forces Central Europe
DCA	Defensive Counterair
DSUP	Defense Suppression
FLOT	Forward Line of Troops
FOURATAF	Fourth Allied Tactical Air Force
IAW	In Accordance With

INT	Intelligence
IR	Intelligence Requirements
MTM	McIntire Theater Model Wargame developed by the Army War College
NATO	North Atlantic Treaty Organization
NORTHAG	North Army Group
OAS	Offensive Air Support
OCA	Offensive Counterair
ROCC	Reconnaissance
WFO	Warsaw Pact Forces
SACEUR	Supreme Allied Commander Europe
SAPF	Sortie-Availability Flow Plan
SSM	Surface-to-Surface Missile
2NDTAF	Second Allied Tactical Air Force
TAX	Theater War Exercise Wargame developed by the Air War College
USAWC	United States Army War College

MEMORANDUM OF AGREEMENT

CARMAX 83

1. INTRODUCTION: CARMAX 83 is a student research project designed to begin development and testing of a joint AWC/USAWC academic exercise for studying theater level employment doctrine. An initial demonstration of a proposed war game will be conducted from 21 March through 8 April, 1983. The AWC's Theater War Exercise (TWX) model and the USAWC's McClintic Theater Model (MTM) provide the computer support for conducting a single, joint exercise.

3. OJECTIVE: CARMAX '83 serves as the initial vehicle for conducting war gaming between the AWC and the USAWC. Its objectives are: one, to demonstrate the feasibility of future exercises by both identifying and demonstrating the mechanics required to conduct war games from physically separated locations; and two, to determine critical exercise actions and flow, and specify the briefings and messages necessary for completing the communications between and among participants. Critical to objectives, is identification of data to be exchanged, the time of transfer and the transfer medium. CARMAX '83 will serve as the foundation for future exercises between the institutions by increasing the knowledge level required to conduct joint war games.

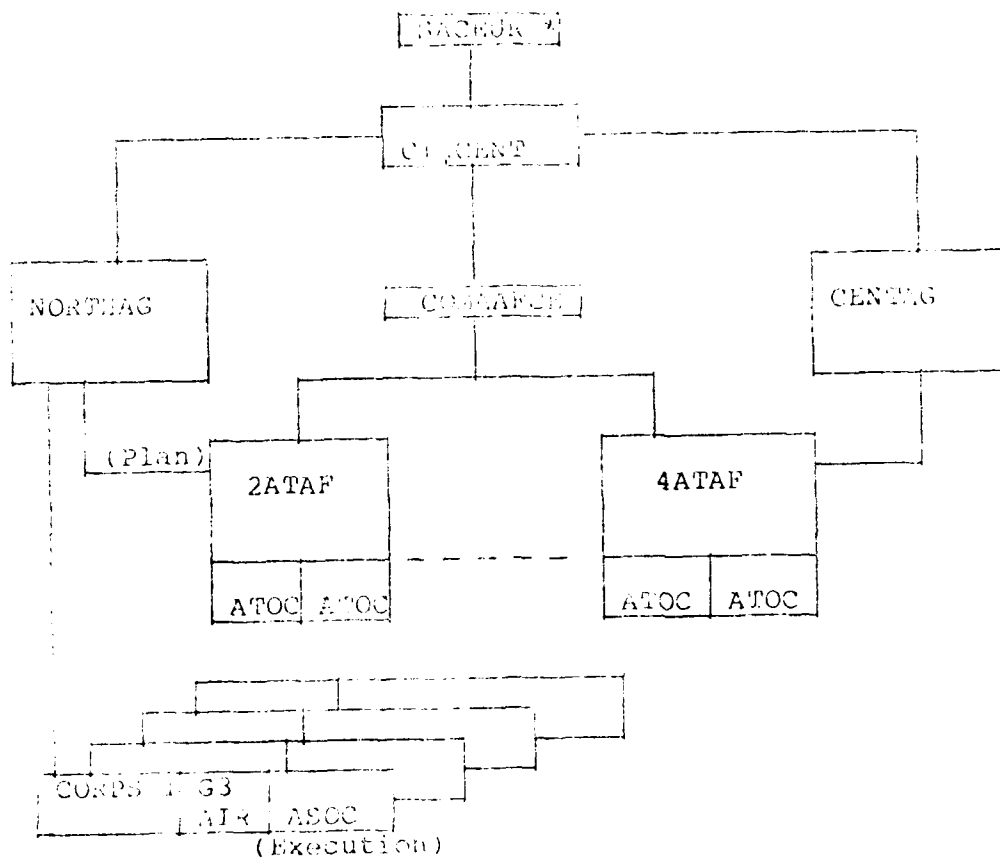
2. SCOPE: The activities of the exercise focus on a Warsaw Pact (RED) offensive thrust in Central Europe, and will include a 21-day build-up of Red forces and the first 5 days of conflict. The 21-day build-up phase will be accelerated and played during

the following time frames: 21-25 March and 26-29 March. The exercise will occur on 4 April and the conflict will continue through April. The correlation of the real world sequence of events and exercise dates is shown at attachment 3; attachment 4 depicts the exercise scenario.

North Atlantic Treaty Organization (NATO) land and air forces will oppose Warsaw Pact land and air forces in the exercise. Decisions which effect the employment of Allied air and ground forces, and Warsaw Pact ground and air forces, are either pre-determined, modified by the control teams, or simulated by the supporting computer models. Student players at Maxwell AFB will conduct the Allied (Blue) air war within the Central Region, with the Warsaw Pact (Red) air war being played by the Combined Air Warfare Course faculty at Maxwell. Student players at the Combined Air Warfare Course will conduct the Allied (Blue) as well as the Warsaw Pact (Red) air war; they will also conduct all operational helicopter play.

Members of the colleges will play the roles of the Allied (Blue) forces in Central Europe as shown in Figure 1. No naval forces will be played in the 1983 iteration of CARMAX. The functions of each of the Allied roles shown in Figure 1 are defined in the appropriate handbooks that describe the TWX and MTM wargame models. CARMAX modifies the computer model support as follows. Blue officers will play the Air Support Operations Center (ASOC). In the initial phase the distribution of Close Air Support (CAS) is reported to the corps. ASOC control team members supply this data to the ASOC, thus simulating an Allied Tactical Operations Center

(ATOC) function. The existing computer models either totally automate this activity internally or leave it out. The function of each of these two operations centers will be described in paragraph 2.



*CONTROL

Figure 1: NATO AFCEM Command Structure

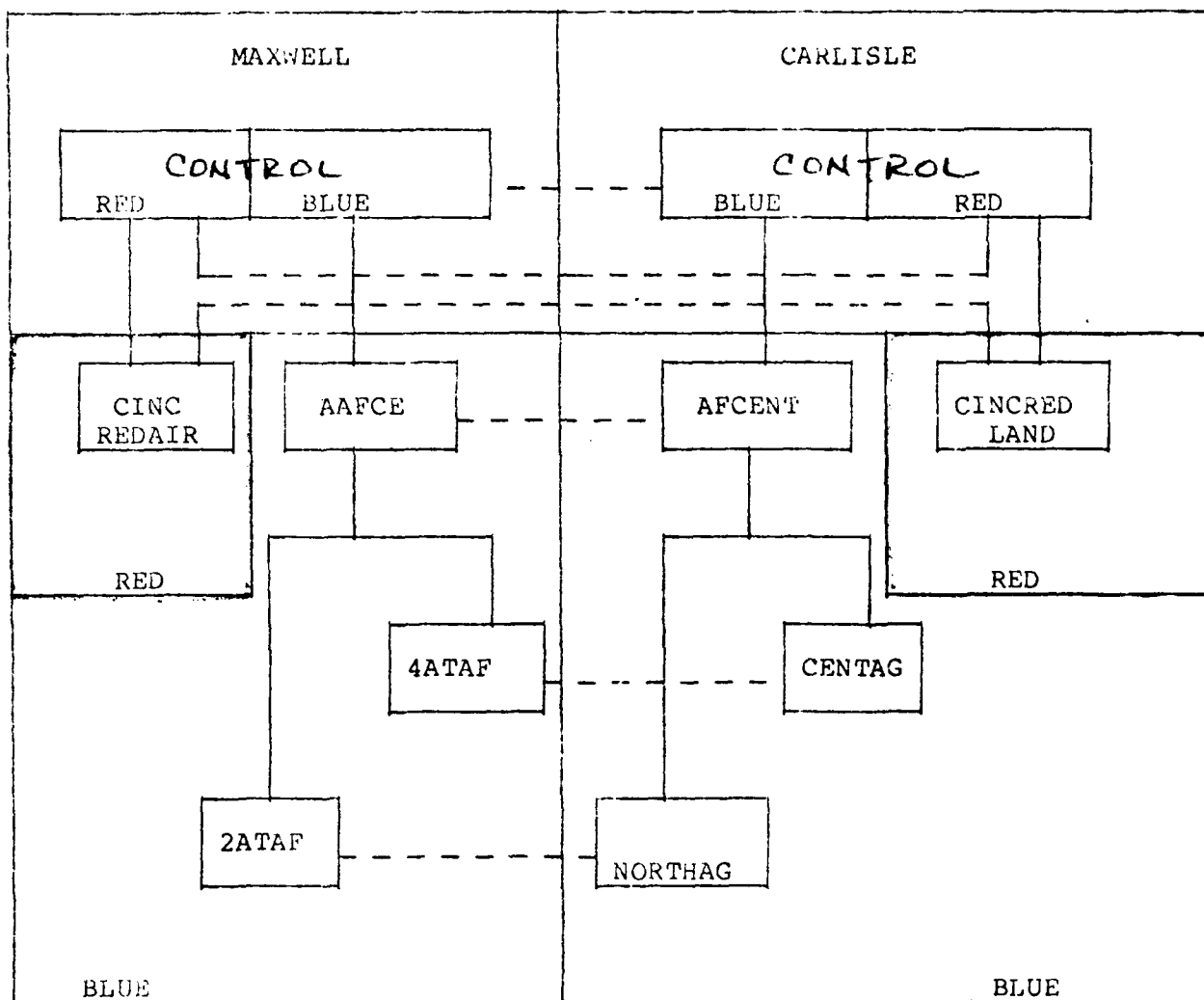


Figure 2: CARMAX '83 Exercise Roles

p

Initially, players at Maxwell and Carlisle will develop initial operations, strategy, and contingency operations plans for a conventional response to a growing Warsaw Pact threat. Subsequently, players will plan for the daily employment of their forces in a simulated combat situation. Execution of the air operations orders as planned, directed, and controlled by the Maxwell team will be simulated by the TWX model. Execution of the land and helicopter operations order as planned, directed, and controlled by the Carlisle team will be simulated by the MTM model. Designation of operations calculated by each model is provided in paragraph 6.

CARMAX 83 will be played in two phases: During the pre-hostilities phase, as the political situation deteriorates and following guidance from SACEUR, CINCENT will issue a Priority Directive (PD) which will require COMAAFCE to develop an air employment strategy and the initial Air Directive (AD). This AD will provide the direction and guidance for COMTWCAF and COMFOURAF to develop daily operations orders. At the start of hostilities and during each war day, the planning for the next day of the air war will include: (1) analysis of the previous day's results; (2) analysis of the BAI prioritized target listing; (3) development of COMAAFCE's AD; and (4) translating the AD into operations orders.

The results of Day-one offensive air support (OAS) operations will be passed by the TWX ASOC to the MTM ASOC for Day-one play by the Carlisle team. (Note: ASOC and ASOC roles are control team functions). The results of Day-one land operations will be

passed by the MTM ASOC to the TWX ATOC for Day-two planning and execution of the TWX model. Concept of play is noted in paragraph 8. CAS, BAI, and reconnaissance are as noted in paragraph 9, 10, and 11 respectively.

4. MTM/TWX MODEL AND CARMAX TEAM INTERFACE: The interface of the Carlisle and Maxwell Blue/Red teams, and the two control teams is as shown in Figure 2. No attempt will be made during CARMAX 83 to directly interface the software programs of TWX and MTM computer models. Data required by each Player Team and Control Team will be passed between the two colleges via AUTOVON, the existing TWX/MTM computer mail process using Texas Instrument Silent 700 (Model 745) terminals, and the telecommunication Data Facsimile Transfer system. Command lines of communication will be in accordance with (IAW) the Allied Command Europe (ACE) Reporting Manual. Interruptions of any mode of communication will be treated as real-world communications problems and will have to be overcome by the exercise participants.

6. Major Event Schedule: The sequence of major events in the exercise between January and May 1983 is as follows:

- a) 21 Jan 83: Carlisle and Maxwell agree on sequence of events and begin coordination on the Memorandum of Agreement.
- b) 7-11 Feb 83: Play practice game #1 during this period.
- c) 1-4 Mar 83: Play practice game #2 during this period.
- d) 21 Mar 83: Red 21-day buildup phase (D-21 thru D-1) begins and runs through 29 Mar 83.
- e) 29 Mar 83: CINCENT to COMAFCE final guidance dissemination.
- f) 28-29 Mar 83: AAPCE Planning, and augmentation and dispersal of Theater Blue Air Forces occurs.
(C-day/deployment day is 28 Mar 83 for exercise purposes.)
- g) 30 Mar 83: Maxwell plans and executes TWX day 1.
- h) 31 Mar 83: TWX day 1 data transferred to Carlisle for MTM day 1.
- i) Border Crossing MTM day 1, TWX day 2
- j) 5-8 Apr 83: TWX days 3 thru 5, MTM days 2 thru 5.
- k) 29 Apr 83: Draft of final reports exchanged between colleges.
- l) May 83: Final reports submitted to appropriate faculty advisors.

Refer to attachment 3 for correlation of the real world sequence of events and exercise dates.

6. COMBAT OPERATIONS VERSUS MTM/TWX MODELS: Combat engagement, changes, and attritions will be computed using either MTM or TWX algorithms. Table 1 depicts the applicable model for each operation.

TABLE I COMBAT OPERATIONS OUTCOMES

<u>Operations of:</u>	<u>Effect on:</u>	<u>Model used:</u>
Blue Air (DCA/CAP)	Red Air	TWX
Blue Air (OCA)	Red Airfields	TWX
Blue Air (CAS)	Red Land Units	MTM
Blue Air (BAI)	Red Tagets	TWX
Blue Air (Int)	Red Targets	TWX
Blue Land Units	Red Land Units	MTM
Red Land Units	Blue Land Units	MTM
Red Air (CAS)	Blue Land Units	MTM
Red Land Units	Blue Air (CAS)	MTM
Red Land Units	Blue Air (BAI)	TWX
Red Land Units	Blue Air (Int)	TWX
Blue Land Units	Red Air (CAS)	MTM
Blue Land Units	Red Air (Int)	TWX
Red Air (DCA/CAP)	Blue Air	TWX
Red Air (OCA)	Blue Airfields	TWX
Red Land Units (SCUD)	Blue Airfields	MTM
Blue Air (Recce)	Red Land Units	TWX
Red Air (Recce)	Blue Land Units	TWX
All Helicopter Play	(All Land Units)	MTM
DCA - Defensive Counter Air	INT - Interdiction	
OCA - Offensive Counter Air	BAI - Battlefield Air Interdiction	
OAS - Offensive Air Support	SCUD - Surface to Surface Missile	
CAS - Close Air Support	RECCE - Reconnaissance	
	DSUP - Defense Suppression	

In addition to the combat operations noted in Table I, above, (1) Red will be capable of executing airborne assaults against Blue airfields, (2) both Blue and Red will conduct Combat Air Patrol (CAP), and Electronic Countermeasure (ECM) missions, and (3) weather will be played in CARMAX 83. Weather information, provided to the players at Maxwell, will also be forwarded to the players at Carlisle via part six of the daily activity summary shown at attachment 2.

7. AIR AND LAND ORDERS OF BATTLE (AOB/LOB): The AOB and LOB for Blue and Red forces have been consolidated from TWX and MTM data bases for CARMAX 83. Tables II through XI, at attachment 1, provide the data as noted below. However, for the most current and accurate information, the computer products from each exercise model must be used as the information in the tables is intended only to be representative of the actual data bases.

- a. Table II: Summary of Blue AOB:
- b. Table III: Blue TWOATAF AOB
- c. Table IV: Blue FOURATAF AOB
- d. Table V: Blue Air Augmentation by Day
- e. Table VI: Summary of Red AOB
- f. Table VII: Red TWO Area AOB
- g. Table VIII: Red FOUR Area AOB
- h. Table IX: Red Air Augmentation by Day
- i. Table X: Blue LOB*
- j. Table XI: Red LOB*

*Augmentation of Blue and Red Land Units will not be played in CARMAX 83. Only those land units available in theater at the time of border crossing will be played.

Figure 1. Typical Day of Operations

Maxwell Events	Local Time (CST)*		NOTE
	Start	End	
Air Task Planning (For Day N+1)	0800	1030	
AWAY Planning (For Day N+1)	1030	1400	Must receive CAS requests, prioritized target list for ATAF planning (USAWC control/ASOC to 78 Control)
AWX Runs Day N	1400	1430	
Results Compiled Data Returned to USAWC	1430	1700	Sorties available from plan for the next day plus results of OCA, BAI, AFI, and WIR loaded into TWX computer for access to USAWC. Intra theater logistics requirements for support of Air Operations also loaded

Carlisle Events	Local Time (CST)*		NOTE
	Start	End	
War Play, Day N	0800	1130	0800: Retrieve information from TWX computer file for inclusion in NFM war play. 0900: Submit logistics information to Maxwell
AWAY Planning For Day N+1			1130: Pass AWX and WIR data to Order of Battle and to to-air CAS attrition at Maxwell

*There is a one hour time difference between institutions

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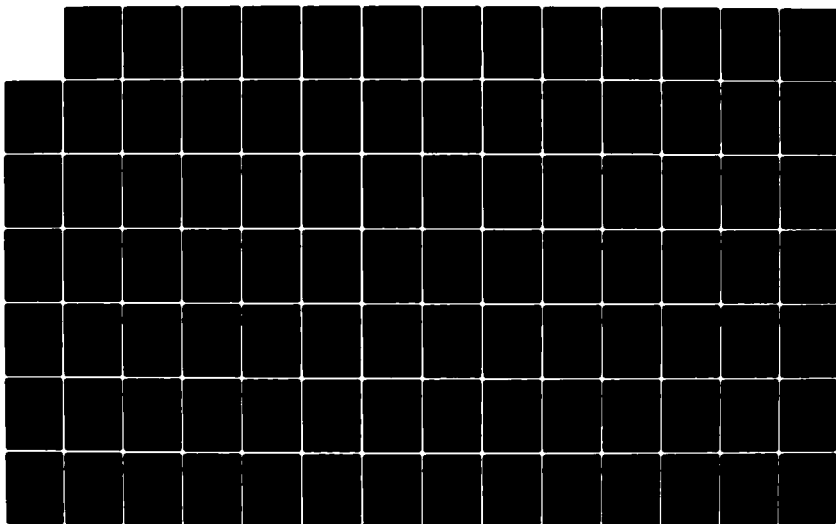
CARMAX 83 A JOINT WAR GAMING RESEARCH PROJECT(U) ARMY
WAR COLL CARLISLE BARRACKS PA JUN 83

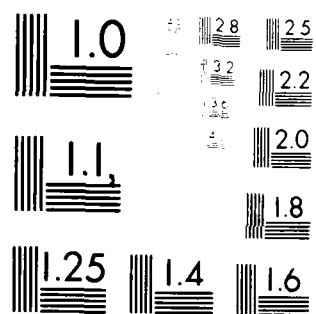
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The following is a description of the play of the CAS sequence. The paragraphs reflect the method in which the play will be conducted and in some cases do not correspond to real world communication and control procedures.

9. PLAY PROCEDURES FOR CAS: As in the previous situation, CAS requires close coordination between Army and Air Force command echelons. The CAS play sequence allows for the prompt response to immediate CAS requests during play of the exercise. From Carlisle Barracks. From the sortie availability list (SAFL), the MTM ASOC will distribute sorties to meet CAS requirements.

The play of Red CAS will be similar to Blue CAS. The differences are that CINCENT is replaced by CINCRULAND and COMAAFCM is replaced by CACRADAIR. CINCRULAND also functions as the Corps Commanders noted in the Blue CAS play sequence.

The following is the step by step procedure for the play of Blue CAS:

- a. CINCENT provides COMAAFCM air operations guidance.
- b. Using this guidance, COMAAFCM establishes air war objectives and apportions his forces based on mission weight of effort and priority and passes the same to TWO and FOUR ATAFs.
- c. Concurrently, Army Groups (AG) provides ATAFs with CAS requirements expected for the next day's exercise.
- d. Carlisle Control (CACC function) provides the proper

vious day's surface-to-air attack sorties to Maxwell control, who gives this to the A-1's for planning.

- e. ATAFs allocate CAS sorties and resolve any/all conflicts with AG.
- f. TWX model is executed.
- g. Using TWX results, the Maxwell control team (ATOC function) determines total sorties flown, total aborts, total air-to-air losses, etc.
- h. Maxwell control (ATOC function) formulates the SAAR and passes this to the Carlisle control team.
- i. Carlisle control (ASOC function) is responsible for providing CAS sorties to corp upon request using STAP.

10. BATTLEFIELD AIR INTERDICTION: BAI will be played IAW current doctrine. The NORTHAG AND CENTAG will provide a prioritized target list to TWOATAF and FOURATAF. Then IAW COMAARPC's apportionment of air resources, the ATAF commanders allocate sorties and plan for the employment of their forces. Sorties apportioned to BAI operations will be IAW the prioritized target list provided by the MTM ASOC with the additional factor of weather included. This means that if weather precludes attacking targets one, two and three and lower priority targets are in the clear, the lower priority targets will be attacked first.

11. RECONNAISSANCE: In an actual battle, theater commanders may have many intelligence sources at their disposal, both tactical (theater/organic) and strategic (national). In CARMAX 83 both tactical and national sources are taken into account. However,

tactical air reconnaissance resources will be the only intelligence source which can be controlled by the exercise participants. Initially, intelligence provided by each exercise model will be used. However, the use of theater air forces reconnaissance resources will be required by both Carlisle and Maxwell exercise participants in order to retain an acceptable degree of confidence in intelligence information. Ultimate success in this war game will depend greatly upon the skill with which the Land and Air commanders use their available reconnaissance assets. MTM players will request reconnaissance daily via MTM ASOC to TWX ATOC communications channel. Reconnaissance results will be passed by the TWX ATOC to the MTM ASOC via part five of the message shown at attachment 2.

12. LOGISTICS: Intratheater movements of munitions required by TWX players, in excess of the 17,600 short tons of host nation support per day that is built into the TWX model, will be requested from the Army. Refer to attachment 2, part seven of the TWX ATOC to MTM ASOC daily activity summary message format.

4 Atch

1. Tables I thru XI
2. Daily Activity Summary Message
3. Realworld/Exercise Correlation
4. Exercise Scenario

TABLE 11
SUMMARY OF BLUE ADD

Aircraft	2 ATAF	4 ATAF	Total
A10A	0	102	102
OF4A	40	100	140
F16A	76	69	145
104A	36	171	207
111A	70	85	155
TORA	12	0	12
ALPA	42	62	104
MIRA	80	0	80
NF5A	80	0	80
AV8A	24	0	24
BUCA	12	0	12
JAGA	46	0	46
130C	0	48	48
160C	32	16	48
OF4D	70	60	130
F15D	26	75	101
F16D	80	0	80
111E	10	0	10
OF4G	0	24	24
OF4R	20	56	76
104R	20	0	20
JAGR	20	0	20
OF4S	0	8	8
F16S	5	6	11
104S	4	9	13
111S	5	15	20
TORS	2	0	2
BUCS	2	0	2
JAGS	4	0	4
EB3AW	6	0	6

Attachment 1

A-1-1

B-34

TABLE III
BLUE TWOATAP AOB

Base #	Name	MTM Hex	Aircraft
20	Soesterburg(US)	*	F15D 26
21	Kliene Brogel(BAF)	*	F16A 36 F16S 4
22	Bierset(BAF)	*	MIRA 40
23	Florennes(BAF)	*	MIRA 40
24	Beauvechain(EAF)	*	F16D 40
25	Wittmundhafen(GAF)	AG 87A#85	OF4D 40
26	Norvenich(GAF)	AB 50A#57	104A 36 104S 4
27	Geilenkirchen(GAF)	*	E3AW 6
28	Hopsten(GAF)	AG 71	OF4A 40
29	Oldenburg(GAF)	AJ 82	ALPA 42
30	Jever(GAF)	AI 87	
31	Leeuwarden(NAF)	*	F16D 40
32	Volkel(NAF)	*	F16A 40 104N 20
33	Eindhoven(NAF)	*	NF5A 20
34	Twenthe(NAF)	AD 70A#71	NF5A 40
35	Gilze Rijen(NAF)	*	NF5A 20
36	Gutersloh(RAF)	AK 65	AV8A 24
37	Laarbruch(RAF)	*	TORA 12 BUCA 12 BUCC 2
			TORS 2 JAGR 20
38	Bruggen(RAF)	*	JAGA 46 JAGS 4
39	Wildenrath(RAF)	*	OF4D 30
40	Alconbury(US)	*	OF4R 20
42	Upper Heyford(US)	*	111A 70 111S 5
56	Dortmund (GAFS)	AI 59A#66	160C 16
57	Osnabruck(GAF)	AI 69A#69	160C 16
58	Felde(US)	AB 82	
85	Marham(US)	*	111F 10
86	Coltisha(US)	*	
87	Schulthorpe(US)	*	
88	Boscombe Down(US)	*	
96	Pipeline	*	
97	Pipeline	*	
98	Alhorn(GAF/US)	AJ 78	
99	Nordholz(GN/US)	AL 90	

* location plots off hex-board

TABLE IV

BLUE FOURTAP AOB

Base #	Name	MTM Hex	Aircraft
41	Lakenheath(US)	*	111A 85 111S 15
43	Bentwaters(US)	*	A10A 82
44	Dijon(FAS)	*	MIRD 25
45	Nancy(FAF)	*	MIRA 30 MIRS 6
46	Luxeuil(FAF)	*	MIRA 24 MIRS 6
47	St Dizier(FAF)	*	JAGA 40 JAGS 10
48	Toul(FAF)	*	JAGA 40
49	Colmar(FAF)	AF 10	MIRA 20 MIRS 10
50	Strasbourg(FAF)	AG 15	MIRD 30
51	Cambrai(FAF)	*	JAGA 20
52	Reims(FAF)	*	MIRA 20
53	Chaumont(FAF)	*	MIRD 30 MIRS 6
54	Etain(FAF)	*	JAGA 20
55	Evreux(FAF)	*	JAGA 20
59	Cologne(US)	AC 57	
60	Stuttgart(US)	AO 19 <i>HW 10</i>	
61	Altenstadt(GAF)	AX 8 <i>HW 1</i>	160C 16
62	Laupheim(GAF)	AS 13 <i>HW 10</i>	
63	Solling(GAF)	AI 21	104A 40
64	Bitburg(US)	AB 3840	F15D 75
65	Hahn(US)	AE 3737	F16A 69 F16S 6
66	Furstenfeldbruck(GAF)	AZ 1412	ALPA 42
67	Spangdahlem(US)	AB 3840	OF4A 42 OF4G 24 OF4S 6
68	Sombach(US)	AH 32	A10A 20
69	Leipheim(GAF)	AL 17 <i>HW 1</i>	ALPA 20
70	Zweibrucken(US)	AF 28	OF4R 20
71	Neuburg(GAF)	AZ 20 <i>HW 1</i>	
72	Ramstein(US)	AF 31 <i>HW 1</i>	OF4A 18 OF4D 20 OF4S 2 130C 16
73	Lahr(GAF)	AH 16 <i>HW 1</i>	
74	Bremgarten(GAF)	AG 9 <i>HW 1</i>	OF4R 36
76	Lechfeld(GAF)	AX 12 <i>HW 1</i>	104A 37 104S 3
76	Giebelstadt(GAF)	AS 33 <i>HW 1</i>	OF4D 40
77	Wiesbaden(GAF)	AK 39	
78	Merningen(GAF)	AU 11 <i>HW 1</i>	104A 37 104S 3
79	Ludwigsburg	AO 23 <i>HW 1</i>	
80	Pierdsfeld(GAF)	AG 37 <i>HW 1</i>	OF4A 40
81	Kaufbeuren(GAF)	AW 19	
82	Buchel(GAF)	AD 42	104A 37 104S 3
84	Spanish Bases	*	
89	Fairford(US)	*	
92	Erding(GAF)	BD 16 <i>HW 1</i>	
93	Mildenhall(US)	*	120C 32
94	Pipeline	*	
95	Pipeline	*	

*Location plots off MTM Hexboards

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TABLE V
BLUE AIR AUGMENTATION BY DAY

Available for Day 1

OA7A 26
A10A 24
OF4A 74
F16A 48
B52A 15
OF4D 51
F15D 15
OF4G 20
OF4R 80
130E 4

Available for Day 2

OA7A 20
A10A 40
OF4A 24
F16A 24
AV8A 12
JAGA 24
B52A 15
F15D 24
OF4G 18
130E 4

Available for Day 3

OA7A 20
A10A 48
111A 48
AV8A 15
JAGA 24
B52A 15
F15D 24
OF4G 18
130E 4

Available for Day 4

A10A 24
OF4A 50
F16A 24
104A 30
111A 24
B52A 30
130C 30
OF4R 18

Available for Day 5

B52A 10

TABLE VI
SUMMARY OF RED AOB

<u>AOB</u>	<u>2 AREA</u>	<u>4 AREA</u>	<u>Total</u>
S07A	65	70	135
017A	135	35	170
M41A	90	130	220
M11A	125	70	195
M17A	0	80	80
M27A	100	35	135
Y26A	0	25	25
T16A	70	70	140
T23A	40	45	85
C05C	80	30	110
M17D	0	10	10
M21D	555	416	971
M23D	235	25	260
C06E	15	15	30
T16E	20	25	45
Y28E	15	15	30
M21R	45	30	75
M25R	20	30	50
T16R	20	25	45
C17S	45	15	60
T17S	15	15	45
M27S	45	0	45
S07S	15	0	15
I28W	3	3	6

*Location plots off ATM Hexboard

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TABLE VII
RED TWO AREA ACB

Base #	MTM Hex	Acft
20	*	
39	AZ 64	U17R 40
40	BD 61	M23D 50
41	BN 80	M21D 45
42	BK 61	M23D 45
43	EL 60	M27A 30 M27S 15
44	BN 61	Y28R 12 Y28E 15
45	*	M21D 45
46	*	U17A 35 U17S 15
47	*	M27A 35 M27S 15
48	*	M21D 45
49	BI 69	SU7A 35 SU7S 15
50	BC 67	M23D 50
51	BI 69	M23D 45
52	BM 73	M25R 20
53	BO 65	M23A 45 M21D 40
54	*	
55	*	M21D 40
56	BK 79	M23D 45
57	BM 73	M21D 50
58	BJ 80	U17A 30 U17S 15
59	BN 80	M21A 50
60	BF 80	U17A 30 U17S 15
61	BF 84	M27A 35 M27S 15
62	BO 91	M21D 50
63	BO 87	M21D 35
64	*	
65	BE 83	M23A 45
66	BD 98	M21D 50
67	BE 94	M21D 30
68	*	M21D 40
69	*	SU7A 30
70	*	M21R 35
71	*	M21D 40
74	*	M21A 40
92	*	M23A 35 M23S 15
93	*	T16A 70 T22A 40 T16E 20 T16R 20
		CUBE 15 CUBC 50 126W 3
95	BD 0064	M21D 45
98	*	CUBC 30
99	*	U17A 40 M21R 10

*Location plots off Hexboard

TABLE VIII
RED FOUR AREA AOB

Base #	MTM Hex	Acft							
21	*	M21D	30	CUBC	30				
22	*	M21R	15	M25R	30	Y28A	15		
23	BL-56 <i>1x57</i>	U17A	30	U17S	15				
24	BE 4753	M17A	40						
25	BO 4705	M21D	40						
26	*	M23A	35	M23S	15				
27	*	M21A	45						
28	BD 56	M23A	35	M23S	15				
29	BE 5455	M21D	50						
30	*	M21D	40						
31	*								
32	BB-52 <i>1305?</i>								
33	*	U17R	15						
34	*								
35	*	M21D	40						
36	*								
37	*	M21D	45	M21R	15				
38	BM 43								
75	*								
76	BM 5761								
77	*								
78	*	SU7A	30	M27A	35				
79	BN 38 <i>1305</i>								
80	*	M17D	10	M21D	45				
81	*	M21D	45						
82	BN 36✓								
83	*	M17A	40						
84	BH 42✓								
85	BJ 34✓	M21A	40						
86	*								
87	*	SU7A	40						
88	BO 41✓								
89	BM 27 <i>31</i>	M21D	35	M23D	25				
90	AX 52✓								
91	*	M21D	40						
94	BK 45	M21A	45						
97	*	T16A	70	T22A	45	T16E	30	T16R	25
		Y28A	25	CURE	15	Y28R	30	Y28E	15

*Location plots off hexboard

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TABLE IX
RED AIR AUGMENTATION BY DAY

Available for Day 1

SU7A	25
U24A	120
U17A	20
M23A	50
M21D	50
M23D	125
M25R	30

Available for Day 2

SU7A	55
U24A	80
U17A	50
M21A	15
M23A	30
U15D	90
M21D	40
M23D	40
M21R	30
M27A	25

Available for Day 3

SU7A	110
U24A	50
U17A	20
M23A	30
U15D	60
M21D	50
M23D	60
Y28R	15
M27A	25
CUBC	45

Available for Day 4

SU7A	20
M21D	30
M23D	40
M27A	25
U17R	15

Available for Day 5

M23A	10
M23D	30

TABLE X

BLOC 100

MM Unit #	MM Unit	Officers	SAI	MM Unit Location	W/L	Name
1	101	1705	50	AP108	9	Surfand Div (A)
2	102	680	25	AM097	9	Home Def Gp 13 (A)
3	103	2725	50	AT098	9	6th Arm Inf Div (A)
4	104	2384	50	AS083	9	1st Mech Div (A)
5	105	2045	50	AC083	6	4th Mech Div (A)
6	106	1705	50	AA077	6	5th Mech Div (A)
7	107	680	13	AT086	9	3rd Arm Div (A)
8	108	1365	25	AL088	6	3-2 Arm Div (US)
9	109	2865	50	AS075	9	1st Arm Div (A)
10	110	2865	50	AM067	9	7th Arm Div (A)
11	111	2865	50	AK083	6	11th Arm Div (A)
12	112	2385	50	AP078	9	1st Arm Div (UK)
13	113	2385	50	AM073	9	2nd Arm Div (UK)
14	114	2385	50	AJ060	5	3rd Arm Div (UK)
15	115	2385	50	AL080	6	4th Arm Div (UK)
16	116	1025	25	AL070	6	5th Flt Force (UK)
17	117	1025	25	AL088	6	7th Flt Force (UK)
18	118	1365	50	AJ060	5	16th Mech Div (A)
19	119	1365	50	AA051	5	1st Mech Div (A)
20	120	1025	50	AA051	5	10th Mech Div (A)
21	121	2865	50	AQ055	8	2nd Arm Inf Div (A)
22	122	2865	50	AM051	8	5th Arm Inf Div (A)
23	123	2590	50	AM041	8	3rd Arm Div (US)
24	124	3410	50	AM036	5	8th Mech Div (A)
25	125	1925	25	AS051	5	4-4 Mech Div (A)

TABLE A (CONT)

BLUE LOG

<u>MM</u> <u>Serial #</u>	<u>TWX</u> <u>Unit #</u>	<u>Others</u>	<u>SA</u>	<u>MTM HEX</u> <u>Location</u>	<u>WA</u>	<u>Name</u>
26	126	3615	50	AT036	8	3rd Mech Div (US)
27	127	2385	50	AX036	8	1st Mech Div (US)
28	128	2590	50	AQ032	7	1st Arm Div (US)
29	129	1025	50	AQ049	8	3-1 Mech Div (US)
30	130	2935	40	AT030	7	12th Arm Div (FR)
31	131	2865	50	AQ025	7	10th Arm Div (FR)
32	132	2865	50	BC033	10	4th Arm. Inf Div (FR)
33	133			BR030		1st Mech Tnk Div (FR)
34	134	1025	25	AT015	4	4th Mech Bde (CA)
35	135	1365	50	AB034	5	1st Arm Div (FR)
36	136	1365	50	AH010	4	3rd Arm Div (FR)
37	137	1365	50	AJ026	4	5th Arm Div (FR)
38	138	1365	50	AA019	4	4th Arm Div (FR)
39	139	1365	50	AH020	4	6th Arm Div (FR)
40	140	1365	50	AB004	4	7th Arm Div (FR)
41	141	1365	50	AA025	4	8th Arm Div (FR)
42	142	1365	50	AA027	4	10th Arm Div (FR)
43	143	680	25	AG025	5	Home Def Gp 14 (FR)
44	144	680	25	AF058	5	Home Def Gp 15 (FR)
45	145	680	25	AF032	4	Home Def Gp 16 (FR)
46	146	680	25	AN020	7	Home Def Gp 17 (FR)
47	147	680	25	AZ022	7	Home Def Gp 18 (FR)
48	148	2385	50	AJ040	5	4th Mech Div (-) (US)
48	149	1025	25	AL032	4	3rd Arm Cal Rgt (US)
50	150	2725	40	AA051	5	9th Inf Div (US)

TABLE A-1 (Cont.)

BRIDGE LOG

Serial Number	Truck Number	Gate No.	SAI	MTM H.A. Location	WX	Name
51	151	680	25	AJ040	8	1/11 Arm Cav Bn (US)
52	152	680	25	AQ049	8	2/11 Arm Cav Bn (US)
53	153	680	25	AR046	8	3/11 Arm Cav Bn (US)
54	154	680	25	BB044	11	1/2 Arm Cav Bn (US)
55	155	680	25	BD046	11	2/2 Arm Cav Bn (US)
56	156	680	25	BB040	12	3/2 Arm Cav Bn (US)
57	157	1025	25	BI073	12	US Berlin Bde (US)
58	158	1025	25	BI073	12	FR Berlin Bde (FR)
59	159	1025	25	BI075	12	FRG Berlin Bde (FR)
60	160	1025	25	BI075	12	UK Berlin Bde (FR)
61	161	1025	25	AF004	4	FR Airborne Div (FR)
62	162	1025	25	AJ038	5	FRG Airborne Div (FR)
63	163	750	25	AG075	10	1st Mount Bde (FR)
64	164	750	25	AC049	11	2nd Mount Bde (FR)
65	165	680	25	AL078	11	3rd Mount Bde (FR)
66	166	70	25	AM085	9	1st Lance Bn (NE)
67	167	70	25	AN050	9	2nd Lance Bn (FR)
68	168	70	25	AK065	9	3rd Lance Bn (UK)
69	169	70	25	AT028	8	1st Lance Bn (UK)
70	170	70	25	AO039	8	1st Lance Bn (US)
71	171	70	25	AV032	8	2nd Lance Bn (US)
72	172	70	25	AA053	7	4th Lance Bn (FR)
73	173	70	25	AA025	4	1st Lance Bn (FR)
74	174	685	3	AH030	4	6th CBAC (US)

Table 1

REL 100

Unit #	Others	SAI	STX MAX Location	REL	Unit
120	2045	70	BD092	12	2nd TK Div (GDR)
121	1045	70	AX089	9	8th MR Div (DR)
122	2590	70	BD088	12	18th GTK Div (SV)
123	1235	70	BC085	12	21st MR Div (SV)
124	2385	70	BF083	12	20th TK Div (SV)
125	2385	70	AZ088	9	94th GMR Div (SV)
126	2590	70	BB078	12	10th GTK Div (SV)
127	2590	70	BC077	12	12th GTK Div (SV)
128	2590	70	BA069	12	47th GTK Div (SV)
129	2385	70	AZ076	9	207th GMR Div (SV)
130	2385	70	BH078	12	6th GMR Div (SV)
131	2385	70	BH070	12	14th GMR Div (SV)
132	2385	70	BG077	12	35th GMR Div (SV)
133	2590	70	AZ052	8	79th GTK Div (SV)
134	2590	70	BC051	11	20th GMR Div (SV)
135	2590	70	AW051	8	39th GMR Div (SV)
136	2385	70	AX052	8	57th GMR Div (SV)
137	2045	70	AU056	8	1st MR Div (GDR)
138	2045	70	AX060	8	11th MR Div (GDR)
139	2045	70	BF072	12	4th MR Div (GDR)
140	2045	70	BF068	12	7th GTK Div (GDR)
141	2385	70	BAC61	11	7th GTK Div (SV)
142	2385	70	BH056	11	9th TK Div (SV)
143	2385	70	BD060	11	11th GTK Div (SV)

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TABLE XI (Cont)

RED LCB

<u>Index</u>	<u>Others</u>	<u>SAL</u>	<u>MTM HEX Location</u>	<u>WX Z</u>	<u>Name</u>
144	2385	70	BF065	12	27th GMR Div (SV)
145	2725	70	BH082	12	20th IS Div (SV)
146	2725	70	BS082	12	38th IS Div (SV)
147	2045	70	BI035	11	1st TK Div (CZ)
148	2045	70	BK031	10	4th TK Div (CZ)
149	1635	70	BG043	11	2nd MR Div (CZ)
150	1705	70	BI045	11	19th MR Div (CZ)
151	2385	70	BF048	11	18th GMR Div (SV)
152	2385	70	BG051	11	32nd Tk Div (SV)
153	1705	70	BO071	15	16th Arm Div (PO)
154	1365	70	BO073	15	1st MR Div (PO)
155	1365	70	BO073	15	2nd MR Div (PO)
156	1705	70	BO087	15	5th Arm Div (PO)
157	1705	70	BO087	15	10th Arm Div (PO)
158	1365	70	BO087	15	4th MR Div (PO)
159	1025	70	BO087	15	15th MR Div (PO)
160	680	35	BO087	15	9th MR Div (PO)
161	1705	70	BO057	14	20th Arm Div (PO)
162	1705	70	BO057	14	11th Arm Div (PO)
163	1025	35	BO057	14	12th MR Div (PO)
164	1025	35	BO057	14	3rd MR Div (PO)
165	1025	35	BO057	14	8th MR Div (PO)
166	1705	70	BO051	14	5th Tk Div (PO)
167	1365	70	BO051	14	20th TK Div (PO)
168	1365	70	BO041	14	21st TK Div (PO)

TABLE 22 (CONT.)

NEW LOB

<u>Unit #</u>	<u>Others</u>	<u>SAI</u>	<u>MTM H&K Location</u>	<u>WX #</u>	<u>Name</u>
169	1025	35	BO041	14	22nd MR Div (SV)
170	2385	70	BO029	13	48th GMR Div (SV)
171	2385	70	BO020	13	47th MR Div (SV)
172	2385	70	BO041	14	31st TK Div (SV)
173	1910	70	BO087	15	1st TK Div (SV)
174	1910	70	BO087	15	246th TK Div (SV)
175	1910	70	BO073	15	256th GTR Div (SV)
176	1910	70	BO073	15	1st GMR Div (SV)
177	1910	70	BO073	15	26th GMR Div (SV)
178	1910	70	BO087	15	36th MR Div (SV)
179	1430	70	BO087	15	5th MR Div (SV)
180	1365	70	BO087	15	23rd MR Div (SV)
181	1910	70	BO087	15	8th GTR Div (SV)
182	1430	70	BO087	15	22nd TK Div (SV)
183	1430	70	BO087	15	3rd GTR Div (SV)
184	1910	70	BO065	15	29th GTR Div (SV)
185	1430	70	BO065	15	17th TK Div (SV)
186	1910	70	BO065	15	27th GTR Div (SV)
187	1430	70	BO065	15	508th TK Div (SV)
188	1910	70	BO073	15	8th TK Div (SV)
189	1910	70	BO073	15	50th GMR Div (SV)
190	1430	70	BO073	15	120th MR Div (SV)
191	1430	70	BO073	15	106th TK Div (SV)
192	1910	70	BO041	14	23rd MR Div (SV)
193	1910	70	BO041	14	509th GTR Div (SV)
194	1430	70	BO041	14	510th GTR Div (SV)

TABLE II (Contd.)

REGIMENT

<u>Unit</u>	<u>Order</u>	<u>SAI</u>	<u>MTM FILE Location</u>	<u>WX</u>	<u>Zone</u>
195	1910	70	BO041	14	66th MR Div (SV)
196	1430	70	BO041	14	70th GMR Div (SV)
197	1430	70	BO041	14	128th GMR Div (SV)
198	1430	70	BO041	14	17th MR Div (SV)
199	1910	70	BO087	14	15th GMR Div (SV)
200	1910	70	BO087	14	29th GMR Div (SV)
201	1430	70	BO007	14	97th GMR Div (SV)
202	1430	70	BO057	14	511th MR Div (SV)
203	1910	70	BO051	15	80th TK Div (SV)
204	1910	70	BO039	15	15th GTK Div (SV)
205	1430	70	BO093	15	125th TK Div (SV)
206	1910	70	BO069	15	128th MR Div (SV)
207	1430	70	BO047	15	134 MR Div (SV)
208	1430	70	BO065	15	130th GMR Div (SV)
209	1430	70	BO065	15	2nd MR Div (SV)
210	1365	70	BN076	15	1st ABN Div (SV)
211	1365	70	BN076	15	2nd ABN Div (SV)
212	1365	70	BN076	15	3rd ABN Div (SV)
213	1365	70	BN076	15	4th ABN Div (SV)
214	1365	70	BN076	15	5th ABN Div (SV)
215	70	70	BG097	12	1st FROG BN (SV)
216	70	70	BK083	12	2nd FROG BN (SV)
217	70	70	BM059	12	3rd FROG BN (SV)
218	70	70	BO055	11	4th FROG BN (SV)
219	70	70	BO039	11	5th FROG BN (SV)
220	70	70	BO087	11	6th FROG BN (SV)

DAILY ACTIVITY SUMMARY REMOAS FORMAT FOR

CARMAX 88

FROM: TWX ATOC, MAXWELL AFB, AL.

TO: MTM ASOC, CARLISLE BARRACKS, PA.

DATE TIME GROUP: 2

SUBJECT: DAILY ACTIVITY SUMMARY FOR CARMAX 88, DAY _____

PART ONE OF SEVEN: DAY _____ CLOSE AIR SUPPORT SUMMARY FOR
TWO ATAF.

A. TIME BLOCK: 0600-1200

-TYPE AIRCRAFT/SORTIES SCHEDULED/SORTIES FLOWN-

1.

2.

3.

ETC.

B. 1200-1800

1.

2.

3.

ETC.

C. 1800-2400

1.

2.

3.

ETC.

D. 2400-0600

1.

2.

3.

ETC.

REMARKS: ABORTS/PMS/JETT/WX/AA//_____/_____/_____/_____/_____/_____

Attachment 2

A-2-1

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DAILY ACTIVITY SUMMARY MESSAGE A-2-2

CARMAX 83

PART TWO OF SEVEN: DAY _____ CLOSE AIR SUPPORT SUMMARY FOR
FOUR ATAF.

A. TIME BLOCK: 0600-1200

-TYPE AIRCRAFT/SORTIES SCHEDULED/SORTIES FLOWN-

1.

2.

3.

ETC.

B. 1200-1800

1.

2.

3.

ETC.

C. 1800-2400

1.

2.

3.

ETC.

D. 2400-0600

1.

2.

3.

ETC.

REMARKS: ABORTS/PMS/JETT/WX/AA//_____/_____/_____/_____/_____

A-2-2

B-50

DAILY ACTIVITY PRIMARY MESSAGE FORMAT FOR

CANAL 10

PART THREE OF SEVEN: DAY _____ INTERDICTION SUMMARY.

A. TIME BLOCK: 0600-1800

-TARGET NUMBER/TIME ON TARGET/BOMB DAMAGE ASSESSMENT-PERCENT (%)
DAMAGE-

1.

2.

3.

ETC.

B. 1800-0600

1.

2.

3.

ETC.

PART FOUR OF SEVEN: DAY _____ INTERDICTION SUMMARY

A. TIME BLOCK: 0600-1800

-TARGET NUMBER/TIME ON TARGET/BOMB DAMAGE ASSESSMENT PERCENT (%) DAMAGE-

1.

2.

3.

ETC.

B. 1800-0600

1.

2.

3.

NOTE: SUBTRACT 100 FROM TAX BLUE UNIT NUMBER FOR TRANSMISSION TO A.M.

A-2-3

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DAILY ACTIVITY SUMMARY MESSAGE FORMAT FOR

CARMAX 03

PART FIVE OF SEVEN: DAY _____ RECONNAISSANCE SUMMARY

A. TIME BLOCK: 0600-1800

-TARGET NUMBER/NUMBER OF SORTIES

1.

2.

3.

ETC.

B. 1800-0600

1.

2.

3.

NOTE: SUBTRACT 100 FROM TWX BLUE UNIT NUMBER FOR TRANSMISSION TO MTM.

PART SIX OF SEVEN: DAY _____ WEATHER ZONES AND CONDITIONS

A. DAY CONDITION (0600-1800)/NIGHT CONDITION (1800-0600) BY ZONE

4.

5.

6.

7.

8.

9.

10.

11.

12.

NOTE 1: WEATHER ZONES 4 THROUGH 12 ARE AS NOTED BY LINE NUMBER.

NOTE 2: WEATHER CODES:

G - GOOD, 3000 FEET/5 NM OR BETTER (EXPECTED)

F - FAIR, 1000 FEET/2 NM OR BETTER (EXPECTED)

P - POOR, LESS THAN 1000 FEET/2 NM (EXPECTED)

DAILY ACTIVITY SUMMARY MESSAGE FORMAT FOR
CARMAX 83

PART SEVEN OF SEVEN: DAY _____ LOGISTICS SUMMARY

A. DATE REQUIRED:

-DESTINATION/SHORT TONS REQUIRED-

1.

2.

3.

ETC.

CARMAX 83 EXERCISE SITUATION AND TIME TABLE

GENERAL

It is the spring of 1986, and East/West relations have continued to cool. The Polish crisis ended in late February, and Poland returned, at least militarily, to its former pro-solidarity state. If anything, the military has been strengthened as a result of its recent role in the enforcement of martial law.

The pact countries are on maneuvers in East Germany when reports begin to come from Poland that a surprise thrust into West Germany is being planned. No confirmation of these reports is obtained, however, and the western Powers take no action other than reviewing their defensive plans.

See attachment 4 for a synopsis of world events for the Spring 1985 to Spring 1986. A time table, which correlates actual dates with exercise dates of CARMAX'83 is included in this attachment, as are the appropriate messages associated with the CARMAX'83 timetable.

Game Play

The game begins with Pact forces in their maneuver area or their home stations. The NATO forces are at their home stations. As in past maneuvers, the Pact has announced the end of its maneuvers and the play begins as they begin to move out of their maneuver area. Prior to their movement, both Pact and NATO force commanders issue their daily orders based upon their strategic appraisal of the current situation and their superior's political and military objectives and guidance. Time has been allotted to formulate these and other subordinate orders. Subsequent orders are to be issued after each 24 hours of elapsed game time.

The following NATO briefings are to be accomplished prior to the beginning of actual game play.

CINCENT Strategy and Guidance

COMAAFE Concept of Air Operations/Appportionment

NORTHAG/CENTAG Orders

2ATAF/4ATAF Allocation of Air Assets

At the end of the 24-hour period--that is, H+24--the CINC will again give his guidance, COMAAFE will appportion the air assets, COMNORTHAG and COMCENTAG will issue their orders, and 2 and 4ATAF will allocate their air assets. The procedure will be repeated at H+48, H+72, etc.

For the ground war played by the SIM, it should be noted that the computer and the capability to regulate the rate of time of game play. For example, when set at 1:1, 1 hour of time equals 1 hour of game time; at 1:24, 1 hour of real time equals 24 hours of game time. During the time the commanders are giving their orders, the game will proceed at 1:1. After the decisions have all been made relative to preplanned air and ground operations, the game will proceed at 1:24. That means that at the end of 1 hour, the concepts must again be evaluated and new or revised orders given. CINCENT, COMNORTHAG, and COMCENTAG have the mission to position the forces 2 or 3 days hence to fight the battle as they perceive it will be.

CARMAX 83 EXERCISE SCENARIO

The Warsaw Pact will make a surprise attack on NATO in central Europe. The attack will come in conjunction with Pact maneuvers held in East Germany in the Spring of 1986. This attack will be conducted by three fronts located in East Germany and Czechoslovakia. This offensive will initially consist of about 34 Soviet, East German, and Czechoslovakian divisions supported by the 16th Air Army.

Pact forces will begin moving to the inter-German border at H-12 with the intent to cross at 0600 on D-day.

NATO will be authorized to begin deployment at H-6 (6 hours after Pact forces start to move west).

CINCENT'S CONCEPT

(Example)

NATO's overall objective is outlined in a revised concept for the defense of the central region in the event of a surprise attack by the Warsaw Pact. This concept calls for the envelopment of Pact forces attacking NORTHAG. CINCENT has directed that NORTHAG conduct a defense in depth to hold a line at least 100 kilometers east of the Rhine River while CENTAG prepares to counterattack, on order, toward Berlin.

CINCENT'S concept is based on the following assumptions:

a. NATO forces will have at least 6 hours between the time political authorities order mobilization and the Pact forces initiate hostilities.

b. At least three, and probably five, French divisions will be released to AFCENT in order to provide depth to the defense of the central region. LOCs in France will be available beginning D+1.

c. The threat's main attack will be in the north with the objective of seizing and holding the major crossing sites along the Rhine River north of Dusseldorf in an effort to landlock West Germany.

d. AFCENT will be reinforced by a US corps headquarters, COSCOM, one infantry division, two French divisions, and selected combat support and combat service support units prior to initiation of the envelopment.

In compliance with CINCENT's overall main effort, the initial objective will be to establish and maintain a cohesive defense sufficiently far enough forward to provide the necessary base for launching an eventual counterattack towards Berlin.

Therefore, CENTAG will defend with the 3d (GE) Corps in the north, the 5th (US) Corps and the 7th (US) Corps in the center, and the 2d (GE) Corps in the south.

NORTHAG will defend with the 1st (GE) Corps in the north, the 1st (NL) Corps and the 1st (BR) Corps in the center, and the 1st (BE) Corps in the south.

Assessment of the Threat

I expect that the Pact attack will be characterized by the overpowering concentration of force and the seeking of a quick decision in our sector. Powerful armor assault formations will be supported by heavy firepower. Pact electronic warfare and ground air defense means are highly developed. They will use helicopter and airborne forces to attack and disrupt our rear and to seize vulnerable key locations. Pact forces are equipped and trained for chemical/nuclear warfare. We must be ready for both. I anticipate that Pact's objectives in our sector will include the seizure or domination of major metropolitan areas and the securing of Rhine River crossings.

Our defense must inflict heavy losses on Pact attacking columns and follow-on echelons, beginning with its first confirmed crossings of the boundary in strength. We will destroy these attacking echelons by preparing a defense that uses the best defensible terrain, starting with that which is closest to the international boundary. We will use all means and techniques to prepare the terrain to multiply the effect of our maneuver and firepower and to degrade that of the threat.

At the same time that we are destroying Pact's assault echelons, we must take specific actions to ensure that we have the time and space necessary for their destruction before they introduce follow-on echelons in accordance with their doctrine. This will be done by attacking the deeper Pact echelons in order to disrupt, delay, and perhaps even destroy these echelons before

that we expect the enemy to attempt the assault on Seoul. I realize that this will require the corps to allocate valuable and limited combat power and intelligence assets to the "deep battle."

If our deep attacks cannot be exploited to weaken Pact's grasp on the initiative, then we will have wasted scarce combat power.

Our defense plans must stress the enemy's nuclear and chemical delivery capabilities and be based on the assumption that he will probably use these assets. In other words, our defense concepts must survive the Pact's use of these weapons. On the other hand, I cannot guarantee that we will receive timely release authority for the use of friendly nuclear or chemical assets. Therefore, we must plan to survive the enemy's use, but we cannot have plans that are dependent upon friendly use.

MACVAG and CENTAG commanders will prepare mission statements and concepts of operation by _____ for approval.

CONCEPT OF OPERATION AND GUIDANCE

(Example)

I believe that if we fail to win the initial air battle in the first couple of days, we will never be able to support the ground battle. Therefore, the CINCENT/COMMAFCE initial approach to air assets will be heavily weighted to counterair operations. This does not mean that we will not support ground operations during the first couple of days; however, it does mean that the available tactical air assets that can fly defensive

counterair missions will be so, and only those aircraft that are basically an air-to-ground function (i.e., A-10, F-111, etc.) will be flown in that mode. It also means that air assets normally used for fighting the "deep battle" (B-1) will be severely limited during this initial counterair fight.

Once we have bludgeoned the threat's initial air attack, I believe that we will be able to establish and maintain air parity with the Pact air forces which will allow us to achieve local air superiority for limited periods when required.

While it is difficult to assess the exact threat to the CENTAG and NORTHAG sectors, I anticipate that the forces directly opposing the central region will have approximately 4,000 combat aircraft. Many will be interceptortype aircraft. I further expect that they will attack the central region, beginning at first light, with 300 to 500 ground attack sorties against targets ranging in depth to about 200 kilometers. His target priorities will be:

- a. Air defense sites
- b. Command and control centers and facilities
- c. Airbases and parked aircraft
- d. Nuclear delivery means, and
- e. Depots and garrisons of field units not yet deployed.

This attack should be completed within 2 to 3 hours. It will be protected by 300-400 fighter cap and air defense suppression sorties. The Pact will also keep a substantial number of aircraft protected by air defense artillery, and most will be hardened

(including, aircraft squadrons), well-revetted storage sites, and backup command and control centers.

After this initial attack, I expect the Pact to concentrate many of his aircraft on defensive counterair missions, continuing to harass our airfields, and using numerous close air support and interdiction sorties to maintain the momentum of his main and secondary ground attacks. Pact air will also be employed to conduct, protect, and support heliborne and airborne assault operations.

The Pact will probably not use close air support near the border, since he will have the advantage of forward disposed and massed artillery to support his attack. In addition, I anticipate that he will use his attack helicopters to provide the majority of his initial close air support. Large numbers of air defense weapons will also be positioned near the international boundary to protect his attacking ground forces. However, as his forces push through the covering force area, they will outrange the more static elements of the border air defenses, and will have to rely on mobile air defense systems which will be displacing forward or will be fired from hasty, exposed positions.

As to the amount of offensive air support which will be provided to the ground commanders, CINCENT/COMAARCE will issue an initial apportionment of the offensive air support for the CENTAG and 101st AG sectors. Many considerations will affect this initial apportionment, with the primary factor being the aforementioned need for emphasis on counterair operations. Once the

battle has been started, variations to the initial apportionment will be affected by the status of Pact ground attack and air attacks against our airbases, our existing sorties rate, the success of our counterair and air defense suppression effort, the weather as it varies throughout our area of operations, and the number of aircraft directed for retainment on nuclear alert. In any case, upon receipt of this apportionment, you will allocate the apportionment into numbers of sorties by aircraft type available for each operation/task, with the exception of battle-field air interdiction (BAI) requirements. In other words, while close air support (CAS) will be allocated by sortie to each corp, BAI will be managed at the air component level.

As a result, our biggest decision every 24 hours will be deciding on the number of sorties to be allocated to BAI in support of the corps air/land battle. BAI requirements cannot be allocated to the corps for planning purpose because each BAI target will most likely require a completely different array of aircraft types in order to be successfully destroyed. Therefore, army commands will have to submit their demands for planned BAI requirements by nominating targets and the degree of damage required. Then, you will allocate the BAI sorties and reflect the allocation in the Air Tasking Message (ATM). Once tasked, these BAI sorties will not be diverted unless a greater threat occurs during the execution of the current AFM cycle, and which cannot be serviced by immediate ground alert BAI sorties or other

means. The shifting will be accomplished at the Army Group/Tactical Air Force level.

One of our most difficult missions will be to assist the ground commanders in finding, targeting, and striking the second-echelon Pact forces. Weather, communications jamming, and the intermingling of Pact forces will complicate acquisitions; however, I do expect the Pact forces will be moving quite openly along the major routes. Therefore, we will have to concentrate our strikes against chokepoints, major roads, and railways.

Remember, the flexible and responsive combat power afforded by our air assets may make the difference in victory or defeat in the central region. As a result, we must be very careful in our application of such valuable and limited assets.

CARMAX 83 TIMETABLE

(FOR CONTROL ONLY)

ACTUAL DAY	EXERCISE DAY	ACTIVITY		COMING
		RED	BLUE	
21 Mar	14 Mar (D-21)	Intel Report (Msg #1) (A-3-)	M-Day Declaration (Msg #2) (A-3-) Strike Force Generation Level (FGL ALPHA) (Msg # 3) (A-3-)	
	15 Mar (D-20)		CINCENT TO COMAACE Planning (Msg #4) (A-3-)	
	16 Mar (D-19)	ANDROPOV issues hardline State- ment vowing CS aggression will no longer be tolerated	Increased Intel- ligence Watch (Msg #5) (A-3-1)	
22 Mar	17 Mar (D-18)		Declaration of M.V. (Msg # 6, (A-3-)	
	18 Mar (D-17)	Danish Naval units first massing of WP Surface forces off Polish Coast		
	19 Mar (D-16)		Dual base/rapid Reactor Shutdown (Msg #7) (A-3-)	
23 Mar	20 Mar (D-15)		A-10 Forward operating Locations (Msg #8) (A-3-)	
	21 Mar (D-14)		Dispersal Plan Guidance (Msg #9) (A-3-)	
	22 Mar (D-13)		SACEUR Strategic Nerve Air Force (Msg #11) (A-3-)	

A-3-10

B-63

CARMAA 83 TIMETABLE (CONT'D)

(FOR CONTROL ONLY)

ACTUAL DAY	EXERCISE DAY	ACTIVITY	
		RED	GREEN
24 Mar	23 Mar (D-12)		B-52 Augmentation (Msg #11) (A-3-)
	24 Mar (D-11)		REROLE Capabil- (Msg #12) (A-3-)
25 Mar	26 Mar (D-9)		
	27 Mar (D-8)		
	28 Mar (D-7)		
28 Mar	29 Mar (D-6)		Augmentation of Blue Air Force Commenced
	30 Mar (D-5)		
	31 Mar (D-4)		
29 Mar	1 Apr (D-3) C-DAY		SACEUR Issues Final Guidance to CINCENT Augmentation of Blue Air Force Completed
	2 Apr (D-2)		CINCENT Issue Final Guidance to COMAAFCE
			Declaration of R.A. (Msg #13) (A-3-)
	3 Apr (D-1)		Declaration of G.A. (Msg #14) (A-3-)
			Border Crossing Authority (Msg #16) (A-3-)

A-3-11

B-64

CARNAX 63 (UNCLASSIFIED)

(FOR OFFICIAL USE ONLY)

ACTUAL DAY	EXERCISE DAY	RED	BLUE	GREEN
30 Mar				Maxwell Plays Day 1 of War
31 Mar				Data is for- warded to Carlisle
4 Apr				Maxwell Plays Day 2 of War. Results for- warded to Carlisle.
5 Apr				Maxwell Plays Day 3 of War. Results for- warded to Carlisle.
6 Apr				Maxwell Plays Day 4 of War. Re- sults for- warded to Carlisle.
7 Apr				Maxwell Plays Day 5 of War. Re- sults for- warded to Carlisle.

A-3-12

B-65

CARMAX 83 MESSAGE NO. 1
INTELLIGENCE REPORT

IMMEDIATE

FROM: SACEUR

TO: CINCENT
COMAAFCE
COMCENTAG
COMNORTHAG
COMTWOATAF
COMFOURATAF

SUBJ: INTELLIGENCE REPORT (CARMAX 83 MSG #1)

1. SPRING TROOP ROTATION MANEUVERS IN EAST GERMANY ARE INTENSE. INFORMANT SOURCES REPORT EMPTY SEATS ON AEROFLOT AIRCRAFT WHEN RETURNING TO MOSCOW. LARGE SCALE MANEUVERS AND COMBINED WARFARE EXERCISES BY SOVIET AND WARSAW PACT FORCES ARE NOTED IN EAST GERMANY AND CZECHOSLOVAKIA. NATO OFFICIALS HAVE NOT BEEN INVITED AS OBSERVERS. TOURIST VISAS TO ALL COUNTRIES BEHIND THE IRON CURTAIN HAVE BEEN DENIED.

2. PRESIDENT IS RECALLING ALL DIPLOMATIC PERSONNEL FROM WARSAW PACT COUNTRIES AND IS INITIATING PROCEDURES TO MOBILIZE US FORCES.

CARMAX 83 MESSAGE NO. 2
M-DAY DECLARATION

IMMEDIATE

MSGID SB 2

FROM: SACEUR

TO: CINCENT
CINCNORTH
CINCSOUTH
COMAAFCE
COMTWOATAF
COMFOURATAF
COMNORTHAG
COMCENTAG

SUBJ: M-DAY DECLARATION (CARMAX 83 MSG #2)

1. THE NAC/DPC HAS BEEN NOTIFIED THAT THE U.S. IS DECLARING COMMENCEMENT OF M-DAY AS AT 1600 THIS DATE. THE NAC/DPC WILL STRIVE TO GAIN M-DAY DECLARATIONS WITHIN 24 HOURS FROM ALL OTHER MEMBER NATIONS PROVIDING AUGMENTATION FORCES.

2. THE U.S. C-DAY WILL COMMENCE AS OF 01 APR 83.

STRIKE FORCE GENERATION LEVEL

IMMEDIATE

MSGID: PD 0A

FROM: SACEUR

TO: CINCENT
COMAFCOE
COMCENTAG
COMNORTHAG
COMTACATAF
COMFOURATAF

SUBJ: STRIKE FORCE GENERATION LEVEL (FGL ALPHA) (CARMAX 83 MSG #3)

1. STRIKE MISSION ASSIGNMENTS FOR COMTWOATAF:

MSN	BASE	NBR AC	TYPE
2001-2005	KLEINE BROGEL (BASE 21)	5	F16
2006-2009	NORVENICH (BASE 26)	4	F104
2010-2013	NOT ASSIGNED	-	XXXX
2014-2015	LAARBRUCH (BASE 37)	2	BUCCANEER
2016-2017	LAARBRUCH (BASE 37)	2	TORONADO
2018-2021	BRUGEN (BASE 38)	4	JAGUAR
2022-2038	NOT ASSIGNED	-	XXXX
2039-2043	UPPER KEYFORD (BASE 42)	5	F111
2043-2100	RESERVED LINES	-	XXXX

2. STRIKE MISSION ASSIGNMENT FOR COMFOURATAF:

MSN	BASE	NBR AC	TYPE
4001-4015	LAKENHEATH (BASE 41)	15	F111
4016-4020	RESERVE LINES	-	XXXX
4021-4045	NOT ASSIGNED	-	XXXX
4046-4051	HAHN (BASE 65)	6	F16
4052-4057	SPANGDALEM (BASE 67)	6	F4
4058-4059	RAMSTEIN (BASE 72)	2	F4
4060-4062	LECHFELD (BASE 75)	3	F104
4063-4065	MINTLOHN (BASE 78)	3	F104
4066-4068	BOCHUM (BASE 82)	3	F104
4069-4100	RESERVED LINES	-	XXXX

3. SUBORDINATE COMMANDERS WILL REPORT ATTAINMENT OF FGL ALPHA AND NOTIFY THIS HQ IMMEDIATELY OF ANY DEGRADATION IN STRIKE FORCE CAPABILITY.

A-3-14

B-67

CARMAA MESSAGE 1.4
PLANNING DIRECTIVE

IMMEDIATE

MSGID: PD 0B

FROM: CINCENT

TO: COMAAFCE

SUBJECT: PLANNING DIRECTIVE (CARMAX 83 MSG 74)

1. COMAAFCE WILL FORMULATE THE CONCEPT OF OPERATIONS TO BE IMPLEMENTED IN THE EVENT OF ARMED ATTACK BY SOVIET/WARSAW PACT FORCES. A POSTURING AIR DIRECTIVE (AD) WILL BE PREPARED TO GUIDE COMTWOATAF/COMFOURATAF WAR PLANNING.
2. MISSION: COMAAFCE WILL, IN THE EVENT OF AN ARMED ATTACK BY SOVIET/WARSAW PACT FORCES, DIRECT SUSTAINED AERIAL OPERATIONS TO DEFEAT ENEMY FORCES, DEFEND ALLIED FORCES, AND RESTORE THE TERRITORIAL INTEGRITY OF THE CENTRAL REGION.
3. AREA OF OPERATIONS: COMAAFCE/CENTAG/NORTHAG AREA OF RESPONSIBILITY IS BOUNDED BY ARNORTH ON THE NORTH, THE POLITICAL BOUNDARIES OF SWITZERLAND AND AUSTRIA ON THE SOUTH, AND ACCHAN/ACLANT TO THE WEST. COMAAFCE MAY BE TASKED BY THIS HQ TO PROVIDE OFFENSIVE AIR SUPPORT TO CINCNORTH AND WILL PROVIDE AIR DEFENSE FOR COMPAITAF, AS PLANNED.
4. SUMMARY OF THE SITUATION: RECENT TROOP MOVEMENTS BY PACT FORCES PURPORTEDLY IN SUPPORT OF INTERNAL POLICIES AND OBJECTIVES CREATE AN IMMEDIATE THREAT TO THE CENTRAL REGION. CURRENT PACT AOB AND LOB IS AVAILABLE FROM INTELLIGENCE SOURCES.
5. ASSIGNED FORCES: NATO (BLUE) AOB IS AVAILABLE FROM COMTWOATAF AND COMFOURATAF. AT P. A., OPERATIONAL COMMAND OF ASSIGNED MEMBER NATION AIR FORCES WILL BE PASSED TO COMAAFCE, IF NOT PREVIOUSLY. COMAAFCE MAY ASSUME SIX NEW SORTIES DAILY FROM SACEUR.
6. RULES OF ENGAGEMENT: NO COMBAT OPERATIONS WILL BE CONDUCTED INTO RED TERRITORY PRIOR TO BORDER CROSSING AUTHORITY (BCA). THIS DOES NOT PRECLUDE SUBORDINATE COMMANDERS FROM TAKING WHATEVER ACTION NECESSARY TO PROTECT THEIR FORCES, BASED ON CURRENT DIRECTIVES.
7. ALL PLANNING WILL ACCOMMODATE FORCE GENERATION LEVEL ALPHA.
8. COMAAFCE WILL PREPARE HIS CONCEPT OF OPERATIONS AND POSTURING AIR DIRECTIVE NO LATER THAN LOB TODAY.

A-3-15

B-68

CARMAX 83 MESSAGE NO. 5
INCREASED INTELLIGENCE WATCH

IMMEDIATE

MSGID: SB 1A

FROM: CINCENT

TO: COMAAFCE
COMCENTAG
COMNORTHAG

INFO: SACEUR
COMTWOATAF
COMFOURATAF

SUBJECT: INCREASED INTELLIGENCE WATCH (CARMAX 83 MSG #5)

1. DUE TO INCREASING TENSIONS IN PRESENT CRISIS, CINCENT DESIRES THAT ALL CENTRAL REGION INTELLIGENCE ACTIVITIES INCREASE THEIR EFFORTS IN AN ATTEMPT TO DETERMINE SOVIET/WARSAW PACT INTENTIONS.

CARMAX 83 MESSAGE NO. 6
DECLARATION OF M. V.

FLASH

MSGID: SB 1B

FROM: CINCENT

TO: COMAAFCE
COMCENTAG
COMNORTHAG
COMTWOATAF
COMFOURATAF

SUBJECT: DECLARATION OF M. V. (CARMAX 83 MSG #6)

"SACEUR HAS DECLARED M. V. EFFECTIVE 0800 THIS DATE."
QUOTE. SACEUR DECLARES M. V. UNQUOTE.

2. CENTRAL REGION AIR DEFENCE UNITS ARE DIRECTED TO ASSUME DEPPEP BRAVO.

CARMAX 83 MESSAGE NO. 7
DUAL-BASE/RAPID REACTOR BEDDOWN

IMMEDIATE

MSGID: PD 00

FROM: CINCUSAFE/DO

TO: COMAAFCE

INFO: COMTWOATAF
COMFOURATAF

SUBJECT: DUAL-BASE/RAPID REACTOR BEDDOWN (CARMAX 83 MSG #7)

1. JCS HAS DIRECTED APPROPRIATE PLANS BE ACTIVATED TO Cope WITH CURRENT CRISIS. THE FOLLOWING DUAL-BASE (DB) UNITS HAVE BEEN ALERTED FOR DEPLOYMENT TO BASES INDICATED IN ACCORDANCE WITH CURRENT PLANS:

A. RAMSTEIN(72)	48 0F4A'S
B. ALCONBURY(40)	20 0F4R'S
C. ZWEIBRUCKEN(70)	20 0F4R'S

2. THE FOLLOWING RAPID REACTOR (RR) FORCES HAVE ALSO BEEN ALERTED FOR DEPLOYMENT:

A. SOESTERBERG(20)	24 F15D'S
B. JEVER(30)	26 0F4A'S
C. GILZE PIJEN(35)	26 0A7A'S
D. COLTISHALL(86)	26 0F4D'S
E. ALCONBURY(40)	20 0F4R'S
F. BENTWATERS(43)	25 0F4D'S
G. FURSTENFELDBRUCK(66)	20 0F4R'S
H. NORDHOLZ(99)	20 0F4G'S
I. LAHR(73)	24 F15D'S
J. MARHAM(85)	4 130E'S
K. LUDWIGSBURG(79)	24 F16A'S
L. SOULTHORPE(87)	24 F16A'S
M. ALHORN(98)	20 A10A'S

3. DEPLOYMENT OF ABOVE FORCES WILL COMMENCE ASAP AND CLOSURE ESTIMATED NLT C+2.

4. BEDDOWN LOCATION DEVIATION REQUESTS MUST BE SUBMITTED TO SACEUR WITH JUSTIFICATION NLT COB TODAY.

CARMAX 83 MSG 83
A-10 FORWARD OPERATING LOCATIONS (FOL'S)

IMMEDIATE

MSGID: PD 0E

FROM: USAFE/DO

TO: COMAACE

INFO: COMWOTAF
COMFOURATF

SUBJECT: A-10 FORWARD OPERATING LOCATIONS (FOL'S) (CARMAX 83 MSG 83)

1. THE FOLLOWING BASES HAVE BEEN ESTABLISHED AS PEACETIME A-10 FOL'S:

ABTORN
NORVENICH

LEIPHEIM
SEMBACH

2. OPERATING SPARES PACKAGES (OSP), MUNITIONS HANDLING EQUIPMENT (MHE) AND A LIMITED NUMBER OF SUPPORT PERSONNEL ARE PRESENTLY LOCATED AT THESE BASES.

3. OSP AND MHE ARE ALSO PRESENTLY LOCATED AT THE FOLLOWING FOLS TO SUPPORT A-10 OPERATIONS:

HOPSTEN

ERDING

4. A-10'S SHOULD BE IMMEDIATELY POSITIONED TO ONE OR MORE OF THE ABOVE FOL'S TO SUPPORT COMBAT OPERATIONS.

CARMAX 83 MSG 49
DISPERSAL PLANNING GUIDANCE

IMMEDIATE

MSGID: PD OF

FROM: SACEUR

TO: CINCENT
COMAAPCE
CINCNORTH
CINCSOUTH
CINCKAIR

INFO: COMTWOCEAF
COMFOURATAP

SUBJECT: DISPERSAL PLANNING GUIDANCE (CARMAX 83 MSG 49)

1. NATIONAL AGENCIES HAVE PROVIDED THE FOLLOWING GUIDANCE FOR PLANNING PURPOSES.

- A. F-111'S CAN FLY COMBAT MISSIONS ONLY FROM UK BASES.
- B. B-52'S CAN FLY COMBAT SORTIES ONLY FROM FAIRFORD (89).
- C. STRIKE ASSETS WILL NOT BE REPOSITIONED.
- D. NO AIR DEFENSE ASSETS MAY BE REPOSITIONED AT THIS TIME.
- E. ONLY USAF AND GAF NON-AIR DEFENSE ASSETS MAY BE DISPERSED IF PROPERLY JUSTIFIED BY YOU AND APPROVED BY SACEUR.
- F. NO ACFT REROLING IS PERMITTED AT THE PRESENT TIME.

SECRET
SACUR STRATEGIC RESERVE AIR FORCES (SSRA)

IMMEDIATE

MSGID: PD 0G

FROM: SACEUR

TO: CINCENT
COMAAFC
CINCUSAFE

INFO: COMTWOATF
COMFOURATF
SACADVON
CINCUKAIR

SUBJECT: SACEUR STRATEGIC RESERVE AIR FORCES (SSRA)
(CARMAX 83 MSG #10)

1. TACAIR UNITS WILL BE AVAILABLE FOR AUGMENTATION/EMPLOYMENT
FROM STAGING BASES (SB) TO THE CENTRAL REGION AS FOLLOWS:

DAY 2

ACFT	DEPLOYMENT BASE
1 SQ A-7'S (20/0A7A)	NORDHOLZ (99)
1 SQ F-4'S (24/0F4A)	EINDHOVEN (33)
1 SQ F-4G'S (18/0F4G)	BREMGARTEN (74)
1 SQ A-10'S (24/A10A)	LEIPHEIM (69)
1 SQ A-10'S (24/A10A)	SEMBACH (68)
1 SQ JAGUARS (24/JAGA)	WILDENRATH (89)
1 SQ B-52'S (15/252A)	FAIRFORD (89)
1 SQ F-15'S (24/F15D)	HOPSTEN (28)
1 SQ F-15'S (24/F15D)	LUDWIGSBURG (79)
1 SQ EC-130'S (4/130E)	SEMBACH (68)
1 SQ HARRIERS (12/AV8A)	GUTERSLOH (36)
1 SQ F-16'S (24/F16A)	SOLLINGEN (63)

CARMAX 63 MSG NO. 10, CONT'D

DAY 3

1 SQ A-7'S (20/0A7A)	NORDHOLM (99)
1 SQ HARRIERS (15/AV8A)	OLDENBURG (29)
1 SQ C-130'S (15/130C)	WIESBADEN (77)
1 SQ F-4G'S (18/OF4G)	GEILENKIRKEN (27)
1 SQ RF-4'S (18/OF4R)	BREMBARTEN (74)
1 SQ F-111'S (24/111A)	BENTWATERS (43)
1 SQ F-111'S (24/111A)	UPPER BEYFORD (42)
1 SQ F-15'S (24/F15D)	LAHR (73)
1 SQ F-15'S (24/F15D)	HOPSTEN (28)
1 SQ A-10'S (24/A10A)	NORVENICH (26)
1 SQ A-10'S (24/A10A)	ERDING (92)

DAY 4

1 SQ F-4'S (26/OF4A)	HOPSTEN (28)
1 SQ F-104'S (15/104A)	SOLLINGEN (63)
1 SQ F-104'S (15/104A)	LAHR (73)
1 SQ C-130'S (15/130C)	MILDENHALL (93)
1 SQ C-130'S (15/130C)	FELDE (58)
1 SQ RF-4'S (18/OF4R)	TWENTHE (34)
1 SQ F-111'S (24/111A)	BENTWATERS (43)
1 SQ F-16'S (24/F16A)	ALCONBURY (40)
1 SQ B-52'S (15/B52A)	FAIRFORD (89)
1 SQ B-52'S (15/B52A)	FAIRFORD (89)
1 SQ A-10'S (24/A10A)	ALHORN (98)
1 SQ F-4'S (20/OF4A)	FILLER

2. COMAAFCE MUST COORDINATE ANY CHANGES TO BEDDOWN LOCATIONS OF US SQDS WITH THE MNCO SO THAT NATIONAL DEPLOYMENT AGENCIES CAN BE NOTIFIED TO DIVERT UNITS AND SUPPORT PERSONNEL & EQUIPMENT.

3. COMAAFCE MUST COORDINATE B-52 DEPLOYMENTS WITH SACADVON.

IMMEDIATE

CARMAX 83 MESSAGE NO. 11

B-52 AUGMENTATION

IMMEDIATE

USGID PD OI

FROM: SACEUR
TO: CINCENT
INFO: USEUCOM
COMAAFCF
COMTWOATAF
COMFOURATAF
SACADVON

SUBJECT: B-52 AUGMENTATION (CARMAX 83 MSG #11)

USCINCEUR HAS ADVISED THAT CINCSAC HAS ALERTED A FORCE OF 15 B-52'S FOR DEPLOYMENT TO FAIRFORD WITH CLOSURE ON C+2. UPON ARRIVAL, FORCE WILL BE AVAILABLE FOR TASKING BY COMAAFCF WITH THE FOLLOWING EXCEPTION: SACLANT WILL REQUIRE 8 B-52 SORTIES DAILY FOR SEA SURVEILLANCE FORECAST TO COMMENCE ON ARRIVAL. CINCEASTLANT WILL COORDINATE MISSIONS WITH SACADVON.

/BT

IMMEDIATE

CARMAX 83 MESSAGE NO. 12

REROLE CAPABILITIES

FROM: SACEUR

IMMEDIATE

TO: COMAAFCF
INFOR: COMTWOATAF
COMFOURATAF

SUBJ: REROLE CAPABILITIES (CARMAX 83 MSG #12)

DUE TO AIRCREW TRAINING AND CAPABILITIES THE FOLLOWING BASES ARE THE ONLY ONES CAPABLE OF REROLING FROM "A" TO "D" MISSIONS AT THE PRESENT TIME:

RAMSTEIN (72)	18 OF4A
HAAN (65)	24 F16A
LECHFELD (75)	37 104A

IMMEDIATE

/BT

CARMAX 83 MESSAGE NO. 13

DECLARATION OF R.A.

FLASH

MSGID SB 5

FROM: CINCENT

TO: COMAAFCE
COMCENTAG
COMNORTHAG
COMTWOATAF
COMFOURATAF

CINCUKAIR

SUBJECT: DECLARATION OF R.A. (CARMAX 83 MSG #13)

ON AUTHORITY OF THE NAC/DPC SACEUR HAS DECLARED R.A. EFFECTIVE
0800 TODAY ALLIANCE NATIONS HAVE BEGUN MOBILISATION. ALL MEMBER
NATIONS, WITH THE EXCEPTION OF FRANCE, GREECE AND TURKEY HAVE
PASSED OPERATIONAL COMMAND OF THEIR FORCES TO NATO. THIS
EXPRESSION OF ALLIANCE SOLIDARITY IS UNPRECEDENTED-LET THE
AGGRESSOR BEWARE!!

/BT

FLASH

A-3-24

B-76

CARMAX 83 MESSAGE # 14

DECLARATION OF G.A.

FLASH

MSGID 53 6

FROM: SACEMA

TO: CINCENT
COMAAFCE
COMNORTHAG
COMCENTAG
COMTWOATAF
COMFOURATAF
CINCSKAFR
CINCNORTH
CINCSOUTH

SUBJECT: DECLARATION OF G. A. (CARMAX 83 MSG #14)

1. G.A. IS DECLARED AT 0900 TODAY. ALL COMMANDERS ARE AUTHORIZED TO TAKE ACTION REQUIRED UNDER GDP. PACT FORCES WHICH HAVE CROSSED THE IGB WILL BE EXPELLED FROM THE FRG.

2. CENTRAL REGION AIR OPERATIONS ARE AUTHORIZED PROVIDED NO WARSAW PACT BORDERS ARE CROSSED. BORDER CROSSING AUTHORITY BEING CONSIDERED BY THE NAC/DPC. ASSUME RAPID ISSUANCE.

3. ALL COMMANDERS WILL REPORT STATUS OF NUCLEAR STRIKE FORCE GENERATION.

/BT

FLASH

CARMAX 83 MESSAGE NO. 15

CENTRAL REGION BLUE AIR BASE ATTACKS

FLASH OVERTIME

MSGID PD 1A

FROM: CINCENT

TO: COMAAFCF
COMCENTAG
COMNORTHAG
COMTWOAF
COMFOURAF
CINCUKAIR

SUBJECT: CENTRAL REGION BLUE AIR BASE ATTACKS (CARMAX 83 MSG #15)

1. AIR ATTACKS BY SOVIET MEDIUM BOMBERS SUPPORTED BY TACTICAL AIRCRAFT HAVE BEEN REPORTED BY COMMAND POSTS AT LAKENHEATH, UPPER HEYFORD, RAMSTEIN, BITBURG, SOESTERBURG AND LAHR. INCOMPLETE REPORTS FROM THESE UNITS INDICATE COORDINATED AIR ATTACKS BEGAN AT 0920L. DAMAGE TO ACFT AND BASE SUPPORT FACILITIES IS BEING EVALUATED.

2. SACEUR HAS DIRECTED PREPLANNED OPERATIONS BE EXECUTED IN RESPONSE TO HIS UNPROVOKED ATTACK. CLEARANCE TO CROSS ICB HAS BEEN GRANTED AND SACEUR DECLARATION OF G. A. HAS BEEN RETRANSMITTED TO YOUR HEADQUARTERS.

VON SENDER UND ETTERLIN SENDS.

/BT

FLASH OVERTIME

A-3-25

B-78

CARMAX 83 MESSAGE NO. 16

BORDER CROSSING AUTHORITY

FLASH

MSGID PD 1B

FROM: CINCENT

TO: COMAAFCE
COMNOPTAG
COMCENTAG
COMTWOATAF
COMFOURATAF
CINCUKAIR

SUBJECT: BORDER CROSSING AUTHORITY (CARMAX 83 MSG #16)

REF: SACEUR MSG : +.<>%&'&%\$'('

1. REF SACEUR MSG RETRANSMITTED FOR YOUR INFORMATION AND ACTION:

QUOTE: IN RESPONSE TO WARSAW PACT (WP) ATTACK. BORDER CROSSING AUTHORITY INTO NONSOVIET WP COUNTRIES IS GRANTED EFFECTIVE THIS MSG. OTG PREPLANNED OFFENSIVE OPERATIONS WILL COMMENCE IMMEDIATELY AND CONTINUE UNTIL DIRECTED OTHERWISE BY THIS HQ. :UNQUOTE.

2. GOOD LUCK!!!

/BT

FLASH

CARMAX 85 EXERCISE SCENARIO

In the Spring of 1985 the United States and the Soviet Union continue to be the two superpowers in a bi-polar world. The United States government remains split over domestic issues. The new administration came to power in January and has since been trying to find the right mix of defense and social programs. The announced U.S. military buildup of the previous administration had never materialized due to Congressionally-mandated budget cuts and the continuing, albeit slackening, inflation climb over the last four years. Relations between the two superpowers remain unsettled; a mix of confrontation and cooperation depending on the situation and location. Throughout the previous administration there was a general tendency toward suspicion and distrust of the Soviets. The Soviets for their part have transitioned to new leadership under Yuri V. Andropov without outward signs of conflict. Brezhnev's death in late November 1982 has made no difference in U.S.-Soviet relations. The Soviets continue to demonstrate caution and appear to have allowed Andropov time to consolidate power. The summer of 1985 was one of increased Soviet presence around the world causing western intelligence analysts to speculate that the Soviets may have become more willing to use its military power, particularly the Navy, as an instrument of diplomacy.

As the worldwide recession deepened and spread, more and more western nations scrambled to protect their individual economies. Protectionism again caused rifts between individual nations and the fabric of western capitalism appears threatened.

The NATO Alliance has continued to strengthen and any new action appears highly unlikely. Continued U.S. pressure on the FRG over the joint Franco-German natural gas pipeline has hardened both positions with western governments reaching separate agreements with the USSR. Continued concern by West European nations over the state of individual economies has resulted in a real decrease in defense spending by every NATO partner except Spain.

The United States began withdrawing combat troops from Europe in July 1967, in an effort to elicit a greater European commitment to the defense of Europe. This policy has met with mixed reaction in Europe with most expressing serious concerns about the US position. In the U.S., the public has supported the withdrawal of that force as being long overdue. Should the need arise to reintroduce troops into Europe, it is doubtful any administration could do so short of a war. Meanwhile no meaningful disarmament talks have been accomplished thereby further cooling U.S.-European relations.

Poland continues to worry the Soviets. Martial law is still being enforced and the state-sponsored trade unions which were to replace "Solidarity" have not completely placated the anger of Polish workers. Intelligence sources report that over the past four years the Soviet Union slowly increased the size of its garrisons in Poland. Also a more visible Soviet presence has been noticed near critical transportation and communications facilities. This has served notice to the rest of the Warsaw Pact that the Soviet Union will not tolerate such

activity and has generally blunted Solidarity-type organizations from springing up elsewhere in Eastern Europe.

In June 1985, East Germany, apparently in coordination with the Soviets, embarked on a program of selective harassment of U.S. and British ground and air traffic into and out of West Berlin. Apparently this activity is the result of large scale defections to the West. Strong western protests about the air corridor incursions remain unanswered.

In November 1985 the Soviet Ambassadors to Norway, Denmark and Sweden simultaneously presented a Soviet initiative aimed at "pacifying" the Baltic. The initiative amounted to no less than a veiled threat to close the Baltic to outside "imperialistic" naval forces. The Soviet initiative was verbally rejected by all three governments.

Yugoslavia was presented with a Soviet "invitation" to participate in joint Soviet-Yugoslavian military maneuvers in Yugoslavia in late November 1985. The Yugoslav government declined initially but expects further Soviet pressure.

The third successive military government was installed in Turkey in 1985 and on 22 November was presented with a Soviet demand that the Montreux convention be terminated by 1 January 1986. From a practical point of view, the Turks have not been enforcing the terms and appear incapable of doing so. Over the past two years western intelligence sources have noted an increase in the traffic of Soviet combatants through the Dardanelles as well as unprotested air space violations.

Severely constrained by the loss of revenue due to the worldwide oil glut of the early 1980s, Libyan leader Kadhafi's military buildup was continuing at the expense of productivity. As the economy began to crumble under this continued drain on resources with its resultant high inflation, severe panic conditions existed in the larger cities where consumer goods and staples were disappearing from markets. Several attempts were made to assassinate Kadhafi by rival factions but all were unsuccessful. Kadhafi felt pressured to show his countrymen that the military buildup was essential to Libya's defense and attempted to perpetrate a need for his forces. In July 1985 he falsely accused Egypt of violating their common border, and, although this resulted in a reinforcement of forces on both sides of the border, it did not bring about war. In August 1985, Kadhafi once again reasserted his position that the Gulf of Sirra was Libyan waters and vowed to defend it. On 12 November, the Libyan air force confronted the U.S. Navy over the Gulf and these dogfights resulted in the loss of six Libyan MIG-21s and one MIG-23 while the U.S. lost one F-14 fighter. Kadhafi vowed to take revenge by attacking U.S. vessels operating in the Gulf.

Several days after the incident, intelligence sources reported that the Soviets were increasing shipments of military equipment and supplies to Libya and "technical assistants", presumed to be Soviet pilots, were entering the country.

After the return of the Sinai was effected in April 1982, the Camp David process halted. The possibilities of having the process restarted received a severe set back in the summer of

1982 when Israeli forces occupied Lebanon and West Beirut. The United States was successful in securing an agreement from Israel to withdraw its force after the PLO forces were expelled from Beirut. The situation in Lebanon remains extremely unstable. The Arabs are also asking for the creation of a Palestinian state on the West Bank and Gaza. To date the United States has been unable to deal effectively with the Arab pressure or impart any momentum toward a solution. Meanwhile, Egypt has shown increasing signs of returning to the Arab fold. The oil glut, now in its third year, has caused a steady decrease in oil prices, economic instability in the Arab world, and with it, a decrease in Arab unity. Most Arab states seemed to pull in to themselves and away from foreign influence. Scheduled CENTCOM exercises in Egypt, Saudi Arabia and Oman were cancelled by those states in June 1985 as those governments sought to place some distance between themselves and the super-powers. Recent U.S. attempts to reschedule the exercises have proven futile.

After a 3-year stalemate and relative peace, war once again erupted along the Iran-Iraq borders in July 1985. President Hussein was assassinated in August. By early September Iranian troops had penetrated Iraq to a depth of 60 miles. Shiite Islamic fundamentalists have since taken control of the government, leading Iran to call for a peaceful settlement to the war and urged a Shiite-federation with Iraq. This never materialized as Ayatolla Khomeini died in early October 1989, placing Iran once again on the verge of civil war. Increased

and the Soviet Union. The Soviet Union has increased propaganda efforts inside Iran as well as outside. On 11 October, Soviet Premier Andropov announced the "Andropov Doctrine" which stated Soviet intentions to protect the Iranian peoples while citing the historically close relationship between the USSR and Iran. The old Soviet-Iranian treaty of the 1920s was cited as the precedent for Soviet assistance.

After nearly six years of fighting in Afghanistan, the Soviets were still trying to solidify their position. They have been unable to stamp out Freedom fighter resistance and are cautious about diverting additional resources to that area. Each winter Afghan rebels escalate their activity causing further Soviet losses. The Soviets recently threatened to take military action against Afghan rebels in sanctuaries in Pakistan. In September 1985, President Zia of Pakistan was assassinated and fundamentalist Muslims took control of the government. India reinforced its borders with Pakistan causing the new government to view this as an act of aggression; however, no fighting has broken out. Meanwhile, free world journalists have pointed the finger at the Soviet Union for this latest string of assassinations, although, no concrete evidence has been cited. The Soviets denied the allegations as pure "pappycrock", and said it looked like the work of the CIA. In early November, Pakistan's government representatives attended an Iranian-sponsored conference in Teheran with representatives of Iran and Afghanistan. Intelligence sources reported the con-

ference objective was to form a new Islamic Economic Federation (IEF) sponsored by the Soviets but led publicly by the Iranians.

The turmoil in Pakistan and leaks about the attempt at establishing an IEF under Soviet sponsorship prompted the Indian government to de-emphasize Indian-Soviet relations. Sources have reported of Indian approachment feelers to the PRC. The Chinese response has been positive but cautious.

In the Indian Ocean Soviet naval units were apparently issued instructions to test U.S. resolve. Commencing in November 1985, in violation of U.S.-Soviet memorandum of understanding, Soviet combatants resumed their practice of deliberately disrupting U.S. naval maneuvers by attempting to enter U.S. formations. It was further learned that the Soviets requested permission to use Iranian ports. Several Soviet warships have been observed near the Straits of Hormuz but none had docked in Iranian ports.

Between 7 and 14 December 1985, several collisions occurred between Soviet and U.S. Navy vessels with minor damage sustained by both sides. U.S. diplomatic protests were promptly rejected by Moscow. On 18 December 1985 a U.S. destroyer collided with a Soviet AGI as it intruded into a formation 300 miles northwest of Diego Garcia. The Soviet AGI sank immediately. Five of its crew were rescued and returned to Soviet control. The U.S. Ambassador in Moscow was summoned to the Kremlin and issued a strong verbal protest. In response, the United States issued a strong protest to the Soviet Ambassador in Washington.

of increasing Communist activity in the Caribbean. After several allied and domestic pressures forced the United States to cease active support for Amato in El Salvador, the election in the spring of 1985 produced a left-leaning coalition. This government ultimately was taken over by the Cuban-backed communists. Increasingly concerned Latin-American neighbors have requested U.S. help in curbing the flow of Cuban arms into Honduras and Guatemala. Intelligence sources in Latin-American indicate an increasing "Cuban" presence in the southern states of Mexico, particularly in the vicinity of Pemex oil operations. Cuba again demanded return of Guantanamo. Shortly thereafter the water supply at the U.S. Naval facility was poisoned by unknown persons. In response to this Cuban activity the United States has increased its naval presence in the Caribbean. Soviet activity in the Caribbean to date has been restrained and limited to increased aerial reconnaissance flights. The Soviet leadership has issued strong statements warning the United States that intimidation of Cuba will not be tolerated.

After four years in office, Greek president Papandreu led Greece out of NATO and established closer ties to the Soviet Union. By June 1985 the last U.S. units left Greece and intelligence sources indicated the arrival of Soviet military personnel and technicians in August 1985. Greece subsequently accused Turkey of overflight violations and incursions into its airspace. Turkey refused to recognize these charges indicating that the Bosphorus is international waters and airways and that the Dardanelles are international waters and airways.

In mid-November 1985, after South Korea rejected the reunification overtures by North Korea, a sharp increase in DMZ violations occurred. South Korean agents reported large-scale military preparedness throughout the North. South Korea requested U.S. assistance in intelligence verification efforts.

Soviet Pacific fleet activity in the South China Sea has increased markedly since September 1985. Soviet warships have been tailing free world fuel tankers probably to intimidate Japan by showing how easily its lifelines could be cut. Soviet reconnaissance flights from former U.S. bases in Vietnam proved worrisome to U.S. 7th Fleet units enroute to the Indian Ocean.

Vietnamese combat units have increased military operations along the Thai border in Kampuchea. China issued a stern warning to Vietnam on 15 October 1985 and threatened future reprisals.

Japanese-U.S. relations have turned from friendly competition and cooperation to bitter and suspicious confrontation due to U.S. implementation of trade barriers to cut off Japanese "dumping" of manufactured products. Also, U.S. efforts during 1983 and 1984 to get the Japanese government to shoulder more of its defense burden caused strong anti-American feelings. Spurred by the worldwide recession and shrinking markets a domestic crisis was deepening and threatened to topple the government. In spite of these events, the United States was forced to adopt a policy of reciprocity toward Japanese imports in May 1985 which prompted Tokyo to recall its ambassador in June 1985. U.S.-Japanese relations remain very tenuous.

South Africa in the early 1980s. The birth of South Africa as an independent state in 1994, led by a democratic government, promised a new era. Beginning in the early fall of 1984 South Africa and the United States provided information about Africa and the United States. The United States continued to struggle with the issue of support of South Africa. There is increasing evidence of Soviet support for insurrectionist activity in the black communities of South Africa population centers. So far the United States has been unable to define a realistic policy in confronting this new Soviet activity.

In western Africa, the Polisario has established effective control over the region known as Spanish Sahara. Morocco's King Hassan renounced all claims to the territory in November 1983 and has since attempted to regain the favor of the Arab camp. However, the west's influence in Africa remains small while the Soviets have found takers of arms but few solid converts to socialism.

Imelda Marcos' assassination in July 1984 has thrown the Philippines into civil chaos. Separatist factions in the south are calling for a new Islamic state. Manila is an armed camp. Imelda Marcos was tried in vain to rally support for her regime. The previous Philippine ambassador to the U.S., who had been in Manila in an attempt to form a government, had been in Manila in an attempt to form a government. The situation in the Philippines will

remain volatile. As of December 1985, the U.S. bases at Subic Bay and Clark continue to be available for short-term use; however longerterm use is doubtful.

In the USSR the Soviets are in severe economic straits. With the diminished capacity for oil export, sources of hard currency are drying up and deliveries to the WP severely curtailed. The flow of currency anticipated from the natural gas pipeline is still two to three years off. The continued poor agricultural performance will send the Soviets scrambling in the international markets by winter. The growing list of client states and Soviet reluctance to shift production priorities all point to unbearable pressure on the regime to act. Andropov's ascendancy has brought increased numbers of hardliners and militarists to the Politburo. These internal Soviet pressures point to a search by the rulers in Moscow for foreign sources of relief. This fact bodes ill for the west.

SUMMARY OF THE SITUATION IN THE BALTIC STATES

1 January 1986 to Date

January 1986

NORWAY, SWEDEN, DENMARK

The new year opened with increased Soviet pressure on the Scandinavian countries to accept the Soviet peace initiative of declaring the Baltic off limits to "outside" military forces.

EGYPT

On 2 January humint sources, with access to President Mubarak, state the new leader plans peaceful overtures to Libya in an effort to steer Egypt back to the Arab camp.

POLAND

The situation in Poland remains extremely delicate. Food shortages coupled with repressions that continue under martial law have triggered bloody confrontations between government troops and citizens. The Soviets use the deteriorating conditions as their reason to take over major transportation centers and key lines of communication. Propaganda releases state that Soviet actions were in response to Polish government requests.

A-4-12

B-91

EGYPT

On 10 January, President Mubarak said Egypt is prepared to offer initiatives to revive the stalled Middle East peace talks. His comments strongly suggest the Camp David accords were a mistake and that only a unified Arab position will resolve the burning issue of Palestinian sovereignty. He used the opportunity to blast U.S. incompetence and insensitivity to the Arab cause.

IRAN

Western news sources continue to report a growing state of unity for an Islamic Federation with Afghanistan and Pakistan. Intelligence sources report Soviet KGB security advisors are more viable and active. To date, the Iranian military authority have shunned politics and shown no inclination to get involved.

LIBYA

Off the Libyan coast U.S. and Soviet design aircraft engage briefly but separate without either side firing a shot. Intelligence sources confirm that Soviet pilots were involved.

February 1986

VIETNAM, THAILAND

U.S. Intelligence sources in Bangkok report increasing Vietnamese pressure along Thailand's eastern border. The Thai government had demanded the Vietnamese troops be withdrawn. In

return, radio broadcasts from Hanoi were aimed for encouraging rebellious Kampuchean mercenaries to cross the border against peaceful villagers.

USSR

The Soviets announce a Warsaw Pact naval exercise in the Eastern Baltic for March 1986.

FINLAND

On 5 February 1986 Soviet forces of an undetermined size cross into the northern territory of Finland. The Finnish premier's efforts to accommodate the Soviets sets off a storm of domestic and international political protests which culminates in his resignation.

PRC

China issued a blunt warning to Hanoi on 10 February demanding the abandonment of Vietnamese imperialistic behavior.

EAST GERMANY, USSR

Increased Soviet and East German air activity along the Berlin air corridor caused a mid-air collision on 12 February between a British airliner and a Soviet fighter. Immediately after the collision, the airliner crashed into a populated area killing nearly 200 people.

GREECE

President Papandreou of Greece summoned the U.S. Ambassador to his office on 15 February. The Greek government presented demands for reparations totaling 15 billion dollars-U.S. for "depreciation" charges for past military occupancy of Greek bases.

GUATEMALA, HONDURAS

Sensitive intelligence sources reveal increasing numbers of Cuban advisors are being seen throughout the country side in both Guatemala and Honduras.

TURKEY

On the evening of 20 February, six Soviet surface combatants leave the Black Sea and forcibly push into the Dardenelles. Turkish forces, unable or unwilling to stop the Soviet movement, requested U.S. and NATO assistance in closing the straits.

March 1986

NORTH ATLANTIC

CINCLANT again confirmed a significant increase in the number of Soviet ballistic missile submarines transiting the GI-UK gap. On 5 March a Soviet "TYPHOON" was detected and briefly tracked (85 miles west of Britain) by a U.S. Navy P3 aircraft operating out of Iceland. CINCLANT/SACLANT reiterated

concerns to NATO intelligence over the growing numbers of Soviet submarines operating in the northern Atlantic.

USSR, WARSAW PACT

Harsh winter conditions have reportedly brought on near starvation diets throughout the Soviet Union. Intelligence sources indicate riots triggered by widening shortages of food are increasing in the Soviet Union, Poland and other Warsaw Pact countries.

MEDITERRANEAN

On 10 March a Soviet Kashin-class destroyer steamed into a U.S. 6th Fleet operating area and began harassing the formation. While on an apparent collision course with the U.S. aircraft carrier SARATOGA, the Kashin activated its fire control system radars. The U.S. DDG THORN attempted to shoulder the Kashin out of SARATOGA's path. When the Kashin fire control radars turned toward the THORN she was taken under fire and sunk. Seventy-eight Soviet survivors were rescued. U.S. and Soviet forces in the Mediterranean were placed on maximum alert.

GUATEMALA, MEXICO

A Mexican border patrol discovered a large cache of U.S. and Soviet made small arms, ammunition, and explosives along the Guatemala border in Mexican territory.

IRAN

Reports from Teheran indicate the new government will soon officially request Soviet military assistance in establishing control over the Straits of Hormuz. Intelligence gleaned from a traveler leaving Iran confirmed a large and growing Soviet presence in and around Teheran.

SYRIA, ISREAL

On 15 March, Syrian and Israeli forces opposing each other in the vicinity of the Golan Heights engaged in a brief artillery duel. No significant damage was reported by either side.

USSR

16 March 1986

Fresh from a series of power consolidation moves, Soviet premier Andropov issued a new hard-line position statement. He vowed U.S. aggression will no longer be tolerated and a just measure of revenge will be extracted for the recent criminal attack on the Soviet destroyer in the Mediterranean.

PACIFIC

On 18 March, Danish naval units confirmed the sinking of Soviet and Warsaw Pact surface forces off the Polish coast.

Northwest of Germany. NATO forces reported approximately 40 violations and incursions.

EUROPE, NATO

From the end of Feb through early Mar, NATO forces reported an increase in NATO airspace violations by Soviet and Warsaw Pact aircraft. The incursions appeared to be testing the combat responsiveness of NATO forces. Also on the increase were incidents of electro-magnetic interference, jamming and deception by Soviet ground forces.

IRAN

U.S. intelligence sources confirm renewed activity along the Iranian border on both sides of the Caspian Sea by an estimated 40 Soviet divisions. Radio reports monitored from Teheran indicate growing support for the new government and its request for Soviet assistance.

KOREA

After responding to South Korean requests for intelligence support, U.S. reconnaissance by SR-71 and U-2 aircraft confirmed North Korean troop and supply buildup north of the DMZ.

On 27 Mar a U.S. SR-71 aircraft was shot down by a North Korean missile battery using new Soviet supplied SA-5 missiles. U.S. forces in Japan and Okinawa were placed on DEF Con 2 alert. CINCPAC requested clearance to take out the missile sites.

IRAN

Radio broadcasts from Teheran by leftists increasingly called for Soviet assistance in restoring international respect for Iran. The new government is calling for a penalty tax on all oil leaving the Straits of Hormuz for the West.

CUBA

On 28 Mar U.S. Air Force F-15s on alert at Homestead AFB, Florida responded to a distress call from a U.S. Coast Guard C-130 south of Key West being harassed by Cuban MIG-23s. Later in the in the day a second flight of F-15s engaged a flight of Cuban MIG-23s. In the ensuing air battle one MIG-23 is downed and another is badly damaged. Before night fall on the 28, Castro accused the United States of imperialistic aggression and announced full scale mobilization.

USSR

CINCLANT has become concerned with piecemeal information from NATO and other European sources which seemed to suggest the Soviet Merchant fleet had been recalled to Soviet territories.

CUBA

On 31 Mar, Cuban forces, composed of what appeared to be five divisions, began moving toward the U.S. military base at Guantanamo.

Apr 1986

MEXICO

In recent days Cuban terrorists have stepped up activity in the Mexican oil fields and Mexican President de la Madrid has asked President Clary for U.S. military assistance in dealing with the problem.

USSR

On 1 Apr Soviet Premier Andropov announced full scale mobilization. On 2 April, the United States declares Def Con 2. The NATO council of ministers, announced General Alert on 3 April.

CARMAX '85 MOA UPDATE

1. Battlefield Air Interdiction: Certain targets are critical to the outcome of battles and must be struck by a specific time. To depict the time sensitivity of these targets, the Army Group staff will specify a "not later than" time for attacking them when coordinating a prioritized BAI target list with the ATAF staff.

2. Special Interdiction Targets list: Carlisle will compile a list of special targets (e.g., bridges, road junctions, tunnels, railroads, etc.) to be attacked or reced by air assets. This list along with units identified on the Air/Land Order of Battle will comprise the BAI, Interdiction, and Reconnaissance targets. Specific details concerning these targets are outlined below.

Red Targets: Targets Blue forces may attack or recce

Blue Targets: Targets Red forces may attack or recce

Target Identification Numbers: Number targets consecutively beginning with No. 230 for both Red and Blue, up to a maximum 150 targets (10 No. 379) per side.

Details required for

assigning air assets: Target ID No., Hex location, Brief target description (and NLT time for BAI missions).

3. CINCENT role will be a Carlisle control team function played by Lt Col Matthews.

4. CINCENT Planning Directive: As per draft MOA, pg A-3-1, the CINCENT will issue daily strategy and guidance information to be used in planning the next day's battle. This information will be contained in a message format similar to CARMAX message No. 4, pg A-3-16 of the draft MOA.

5. Coordinated release of CARMAX messages: The control teams at both Carlisle and Maxwell will insure the simultaneous release of all preformatted messages.

6. Weichfeld Base Number, Table IV, pg A-3-1, is changed to No. 75.

CARNAX 83

MILESTONES

DATE	EVENT
1. 1 DEC 82	establish and gain approval objectives
2. 2 DEC 82	Air War College visit to Army War College A. Joint IPK B. Commo C. Joint objectives D. Resolve conflicts in game
3. 15 Dec 82	Review and understand MIM capabilities A. Red B. Blue C. Controller
4. 15 Dec 82	Review and understand BWX capabilities (comm available in RM 8203) A. Red B. Blue C. Controller
5. 15 Dec 82	Specify order of battle (all players to become familiar with)
6. 15 Dec 82	Develop scenario (all players to become familiar with) A. Red B. Blue
7. 15 Dec 82	IPK
8. 7 Jan 83	Specify equipment requirements and order equipment A. Maps B. Magnets C. Hex maps D. Rooms
9. 14 Jan 83	Establish commo requirements A. Design commo setup B. Secure commo plan approval C. Order commo
10. 14 Jan 83	Develop prehostility message traffic
11. 14 Jan 83	Redraft player's guide
12. 1	OVER

12.	17 Jan 83	IPK
13.	23 Jan 83	Establish schedule of events (time phasing)
14.	1 Feb 83	IPK
15.	4 Feb 83	Assign players and play practice game
16.	25 Feb 83	Conduct rehearsal
17.	28 Feb 83	IPK
18.	1 Mar	Conduct interface rehearsal (commo)
19.	17 Mar 83	IPK
20.	21 Mar 83	Install and test commo
21.	21 - 25 Mar 83	Conduct prehostility play interface with Maxwell
22.	28-30 Mar 83	Conduct full play with Army War College i.e. prehostilities, initial deployments and pass data to Air War College m/n and TWX.
23.	4-6 Apr 83	Play the final game
24.	8 Apr 83	Tasking instructions
25.	18 Apr 83	Preliminary typed drafts
26.	25 Apr 83	Final drafts
27.	28 Apr 83	USAF War College hand carry draft to Carlisle
28.	30 Apr 83	USAWC hand carry draft to Maxwell
29.	10 May 83	Maxwell mails comments
30.	30 May 83	Carlisle mails comments
31.	31 May 83	Final report

CARMAX 83
INDIVIDUAL ASSIGNMENTS

EVENT NUMBER	RESPONSIBILITY
1.	Sellers, Carter, Weisner
2.	Sellers, Carter, Weisner
3.	All
4.	All
5.	Red - Decker, L. G. Blue - Bonner, W. C.
6.	Red - Page, W. C. Blue - Buckles, M. J.
7.	All
8.	Red - Entlich, R. E. Blue - Morrison, L. G. Plus Faculty Support
9.	Blue - Dixon, D. G. Control - Pearce, P.
10.	Red - DiCaprio, H. Blue - McCloud, J. H.
11.	Red - Murray, J. W. Blue - Cummins, J. W. Control - Patterson, J. K.
12.	All
13.	Red - Page, W. C. Blue - Volts, D. G. Control - Wells, W. E.
14.	All
15.	Sellers, Carter, Weisner
16.	All
17.	All
18.	CONTROL - SELLERS, CARTER BLUE - DIXON, D. G. FACULTY SUPPORT

EVENT NUMBER

RESPONSIBILITY

17.	ALL
20.	Blue - Dixon, D. D. Control - Pearce, J. Plus Faculty Support
21.	ALL
22.	ALL
23.	ALL
24.	ALL
25.	ALL
26.	ALL
27.	TBA
28.	TBA
29.	TBA
30.	TBA
31.	TBA

C A R M A X 83

GENERAL INFORMATION/INITIAL GUIDANCEI. General.

a. The development and implementation of the Joint Army/Air War College War Gaming Exercise "CARMAX 83" is a unique project having interest at the highest levels of both the Army and the Air Force. It behoves each of the selected participants to be aware of the impact that their contribution can have on the development and support of future Army and Air Force leaders as they develop, out of necessity, a better understanding of the manner in which the overall battlefield is managed.

b. Each participant is advised that since this project is a new undertaking, the direction to be taken cannot be fully and clearly defined. As a result, the tasks specified below cannot be considered all inclusive and finite. Since it is our goal to establish a joint computer-assisted war gaming exercise that can be expanded to support the curriculum requirements of both War Colleges, the tasks must evolve from the development process.

c. The assignment of students to the teams and the subsequent allocation of tasks are not rigid. It is an attempt to initialize the project and to get it moving toward the goal. Each participant is expected to provide input and suggestions across the entire spectrum of the project's development. It is not the intent to make experts of each person in all areas of this project, but the need clearly rests on the project group to develop a workable and understandable game for use in educating and training our future military leaders.

II. Specific Tasks.

	<u>RED</u>	<u>BLUE</u>	<u>CONTROLLERS</u>
a. Project Development.			
1. Establish project objectives.	X	X	X ⁺
2. Establish milestones/joint progress reviews.	X	X	X ⁺
3. Establish schedule of events (time phased).	X	X ⁺	X
4. Develop joint game objectives.	X ⁺	X	X
5. Provide for consolidated after action report.	X	X ⁺	X
6. Review TWX capabilities.	X	X	X

	<u>RED</u>	<u>BLUE</u>	<u>CONTROLLERS</u>
b. War Game Handbook.			
1. General situation.	X ^v	X	
2. Red scenario.	X		
3. Blue scenario.		X	
4. Player's Guide.	X	X	X [*]
5. Orders of Battle.	X	X	
c. War Game Supporting Materials.			
1. Maps (1:500,000\ NATO C.R.		X	
2. Hex overlays--coded.	X		
3. Player pieces--magnetic/L shaped.		X	
d. Communication Requirements.			
1. Telephones (3 for autovon; 3 for computer). Coordinate with United Telephone and Post CE.	X		
2. Altos Computer (1 for play).		X	
3. Portacom terminals (3).		X	
4. Facsimile capability.	X		
5. Model modification/enhancement.	X	X	X [*]
e. Organization of Game Exercise.			
1. Sequence/info flow/timing.	X	X	X [*]
2. Level of play--controllers vs. players.	X	X	X [*]
3. Room layout (2 seminar rooms).		X	

III. Team Organization.

a. Red Team. (R)

1. Wessner, W. E. (TM LDR)
2. Decker, D. H.
3. Murray, J. W.
4. DiCaprio, A.
5. Entlich, R. E.
6. Page, W. C.

RED BLUE CONTROLLERS

2. Blue Team. (B)

- ✓1. Carter, W. G. (Team Leader)
- ✓2. Burns, W. C.
- ✓3. Cummings, J. W.
- ✓4. Buckles, H. I.
- ✓5. Dixon, D. G.
- 6. McCloud, J. A.
- 7. Volta, D. H.
- ✓8. Morrison, E. B.

3. Controllers. (C)

- ✓1. Sellers, T. H. (Team Leader)
- ✓2. Wells, W. E.
- ✓3. Pearce, F.
- ✓4. Castleman, R. J.

* Denotes group primarily responsible for task.

LTC Maxwell

AWCAG-A

17 February 1983

MEMORANDUM FOR RECORD

SUBJECT: CARMAX 83-Test Report #1

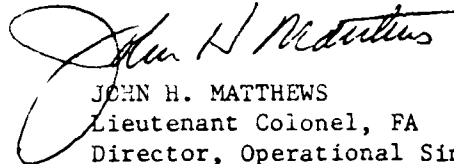
1. During the period 7-11 February, a war gaming exercise test of CARMAX 83 was conducted between the Army War College and the Air War College. The undersigned was at Maxwell AFB to observe the test and to coordinate actions relative to the conduct of CARMAX 83. LTC Tezak was the POC at Carlisle during the test.
2. The following actions and problems surfaced as a part of the test phase:
 - a. Access to H6000 from Carlisle: no problem; data was transmitted and received. Silent 700 allowed direct access via commercial phone hookup to Maxwell computer.
 - b. Access to ALTOS from Maxwell: access was attempted from Maxwell to the ALTOS; however, the Silent 700 Model 735 at Maxwell is a model that is incompatible with the Baud rate on the ALTOS. Maxwell will have the correct model (745) on hand by the end of February. No other problem foreseen.
 - c. The message send/receiver system called "Mailbox" in the Honeywell is deemed adequate for use during CARMAX. However, COL Dean Pappas suggested that we use the CARDIN procedure to build message files. MAJ Stojak, Maxwell, has been directed to look into this capability. This will require training students on the CARDIN procedures for the Honeywell.
 - d. The procedural play between the two locations seemed to be a little disorganized. Both groups agreed that the procedures need to be defined better and structured to support the smooth flow of information.
 - e. An attempt to exercise the NATO game in the ALTOS failed. This was due to the limitation in the model to the number of units that can be played based on file space. The name of each unit must be reduced in size. Action will be taken to update the names in accordance with the space limitations.
 - f. The use of teleconferencing capability was discussed. The cost of duplex transmissions for a minimum of one month rental would be \$100,000. COL Pappas felt this would not be cost effective for the current effort. He indicated that more research might be done to find a less expensive way to accomplish this action. He suggested using a T-39 aircraft and Army helicopter to support a traveling briefing team to simulate a similar action within AFCEM HQs. Further planning will be considered along this line. Efforts will continue toward acquisition of a full teleconferencing capability to support further CARMAX efforts.

AWCAC-A

16 February 1983

SUBJECT: CARMAX 83-Test Report #1

3. A follow-up test program will be conducted during the period 25 Feb-4 Mar. A representative of the Air War College will be present at Carlisle during this test phase. The undersigned will be present at Maxwell. This dual representation will facilitate the development of the game play and procedures.



JOHN H. MATTHEWS

Lieutenant Colonel, FA

Director, Operational Simulations



DEPARTMENT OF THE ARMY
US ARMY WAR COLLEGE
CARLISLE BARRACKS, PENNSYLVANIA 17013

REPLY TO
ATTENTION OF

AWCAG-A

8 March 1983

MEMORANDUM FOR CHAIRMAN, DEPARTMENT OF WAR GAMING

SUBJECT: CARMAX - Test II

1. During the period 28 February - 4 March, a second test of CARMAX 83 was conducted between Carlisle and Maxwell. The undersigned observed the test at Maxwell while LTC Lynn Jackson, USAF, represented Maxwell at the US Army War College. The schedule called for each side to alternate days of play to provide for maximum flexibility in passing information and to assist in identifying possible shortcomings in the exchange of data and information.
2. The following weaknesses were identified during this exercise:
 - a. A continuing misconception of how each service conducts its planning and execution to support EAC operations. This situation is somewhat aggravated by the lack of any EAC doctrine in the Army. This situation should improve as we both play more of these joint war games.
 - b. Numerous problems with the new MTM version on the ALTOS. Problems continue to stem from major changes during November and December and subsequent corrections which have not been tested adequately. Now that the Strategic Mobility Simulation is over, more dedicated testing of the game can proceed.
 - c. Too many outside demands on Carlisle players hindered good flow of information and exchange of data. This problem also faced the Maxwell group. (See para 4b (2) below.)
 - d. Lack of appropriately planned data to support the interface and exchange of data. This resulted from a clear misunderstanding of what data is needed and how it is to be used by both groups. In addition, some players have been a little lax with their duties relative to preparing for this exercise. Continued meetings and testing will help overcome this shortcoming plus more "telling each player what to do" from the undersigned.
 - e. Aside from the above weaknesses the physical exchange via modems and telephones went especially well.
3. During the test, I held discussions with COL Pappas about how the game needs to be played and what improvements in the organization are needed for future exercises. In general, we both agreed that these test periods have been marginally successful and have identified key areas for refinement and future enhancements.

AWCAG-A

8 March 1983

SUBJECT: CARMAX - Test II

COL Pappas reiterated his view and position that CARMAX 83 is a research effort and not anywhere near a production type of exercise. He expects no "out of the ordinary" interest in the game other than that generated within the staff and faculty of the Air War College. He also indicated that for this iteration of the game he would not support the use of teleconferencing during the exercise.

4. Discussions with COL Pappas and several key players at both locations and analysis of the tests results reveal several actions that must be considered and implemented to insure that future iterations of CARMAX will be successful exercises used to support professional military education at both institutions. These actions are summarized below:

a. A group of 2-3 faculty members (representing war gaming/computer/curriculum) from each institution should meet jointly in the May 83 time frame to review the final after-action report from CARMAX 83. The group should spend 3 to 4 days analyzing the report and building a program for AY 84. The objective of the group would be to answer these questions:

- (1) What are we trying to do with CARMAX?
- (2) Who does what to whom when?
- (3) How can we improve the interface?

b. The group must also develop a joint memorandum of understanding to be signed by each Commandant so that the CARMAX effort receives appropriate status in the academic program for the year. The MOU should include the following key parts:

(1) Recognizing the establishment of a small research group (5 students) at each school to build their respective portions of CARMAX 84 to serve as the foundation of the AY 84 Advanced Course.

(2) A firm commitment to establishing blocks of time for the conduct of tests and the actual play of the exercise when the players are not subject to outside demands.

(3) Resources earmarked and set aside for the acquisition of full duplex, teleconferencing capability in support of the actual conduct of the exercise.

(4) Clearly identified inputs to and support for the overall core curriculum.

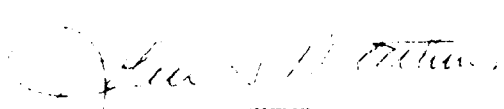
5. The tests of CARMAX 83 have already demonstrated there is a tremendous lack of understanding about how the Army and the Air Force support each other in their respective views. As a program, CARMAX will help alleviate this misunderstanding and give each of the services a better appreciation of the way the other service conducts joint operations. It will provide a basis for improvements in other areas in which the services have a lack of understanding of roles and supporting requirements. Concern for this lack of understanding has been voiced by both the CSA and CofS, USAF.

AWCAG-A

8 March 1983

SUBJECT: CARMAX - Test II

6. Recommend the actions suggested in paragraph four above be implemented.


JOHN H. MATTHEWS
Lieutenant Colonel, FA
Director, Operational Simulations

CARLISLE
Test Phase 1

I. Schedule of actions:

- a. Friday 25 Feb--TWX plays. Carlisle passes CINCENT guidance (COMAAFCF), initial positions, BAI targets prioritized by ID numbers, distribution of air sorties by ATAF. Check data base and operation of the Altos with the model. Test, if possible the interface between the Altos and Maxwell via the Silent 700 model 745 at Maxwell.
- b. Monday 28 Feb--MTM plays. Maxwell passes to the controllers via the Mailbox routine on the Honeywell all the information as per the attached format. This data will be given to the Red/Blue side as necessary for their use. Play the first day of ground battle. Data on aircraft losses will be passed to Maxwell via the Mailbox routine. Develop new guidance for air sorties, BAI targets, and distribution of sorties by ATAF. Attend briefing given by LTC Cushman in the Command Conference Room.
- c. Tuesday 1 Mar--TWX plays. Modifies aircraft based on ground battle results. Flies day 2; builds sortie results; information to be available to Carlisle via Mailbox routine.
- d. Wednesday 2 Mar--MTM plays. Carlisle repeats all actions as on Monday. Conducts 2d day of ground battle. Passes information to Maxwell via Mailbox routine.

II. Points of Contact:

- a. Carlisle--AV 242-3634 or 242-_____ (Room B207)

LTC Ed Tezak, OIC
LTC Lynn Jackson, USAF, Air War College Representative
LTC Tom Sellers, Student Controller

- b. Maxwell--AV 875-5011 or 875-7831

LTC Hugh Dayton, Student Controller
LTC John Matthews, Army War College Representative
Maj Tony Stojak, CAWC, Air War College OIC

III. Computer Access Codes:

- a. Honeywell access passwords and ident numbers for use via Silent 700 EDT at Carlisle

FKADYC2\$THIRD/ZZZUZZ	--	E062C,10,J (Controller use)	Telephone Number to
FKADYC4\$FARM/ZZZUZZ	--	E062C,10,J (Blue player use)	be used to access
FKADYC6\$SCOTCH/ZZZUZZ	--	E062C,10,J (Red player use)	computer at Maxwell
			202-293-6935 6100/

- b. Demo sitreps are still in the computer because the MTM has not been changed yet. 2844/513
to allow for the sitreps to be built by the game. The actual sitrep information will have to be passed to Maxwell via the telecopier in the SSI area.

IV. Targetting:

Basic fixed targets identified for use in CARMAX 83 must be identified in quantity and specified by target numbers in sufficient lead time to allow Maxwell to load the information into the data base. It requires about 7-10 days to get the data base changed for use by TWX. As a temporary fix for our use in the test phase, we will use those unit IDs for units in the data base specified in the DIRECTOR mode. These units have been loaded into the TWX database. The only thing needed is the unit ID number and the target description for the fixed target such as bridge, tunnel, rail junction or road intersection.

CANMAG

PERSONNEL LISTING

PROJECT MANAGER, Carlisle
PROJECT MANAGER, Maxwell

CHIEF CONTROLLER, Carlisle
CHIEF CONTROLLER, Maxwell
RESEARCH TEAM CHIEF, Carlisle
RESEARCH TEAM CHIEF, Maxwell

LTC John H. Matthews, DWG
MAJ Kenny Anderson, CRES
MAJ Tony Stojak, CAWC
LTC Sellers
COL Johnson
LTC Tezak
COL Furey

NATO COMMAND POSITIONS

CINCENT
COMNORTHAG
G-3

G-3 AIR
G-2

ASOC
COMCENTAG
G-3

G-3 AIR
G-2
ASOC

COMAAFCE
TWO ATAF/ATOC
FOUR ATAF/ATOC
AAFCE LOG/PRIORITIES

LTC Matthews, USAWC
COL Buckles, USAWC
LTC Volta, USAWC
LTC Cummings, USAWC
Mr. Dixon, USAWC
LTC Pierce, USAWC
LTC Carter, USAWC
LTC Burns, USAWC
LTC Morrison, USAWC
LTC McCloud, USAWC
COL KREIGER, USAWC
LTC Dayton, USAF AWC
LTC Dayton, USAF AWC
LTC COLLINS, USAF AWC
LTC Mayer, USAF AWC

WARSAW PACT COMMAND POSITIONS

NORTHERN FRONT

CENTRAL FRONT

SOUTHERN FRONT

SENIOR POLITICAL ADVISOR

COL Page
LTC Murray
LTC Wessner
LTC Decker
LTC DiCaprio
LTC Entlich
Mr. John Sloan, ACSI

SEQUENCE/INFORMATION FLOW/TIMING

A. A TYPICAL PLAY DAY GENERALLY FOLLOWED THIS SEQUENCE OF EVENTS:

ALL TIMES ARE CARLISLE LOCAL.

A DETAILED DISCUSSION OF EACH EVENT IS IN PARENTHESIS:

17. CONTROLLER MEETING
0800. GAME PLAY BEGINS
1300. SUBMISSION OF CARLISLE CAS. BAI. AIR LOSS AND RECCE RESULTS
1400. SUBMISSION OF LAND SITUATION REPORTS
1500. RECEIPT OF MAXWELL'S CAS. OF TRIBUNAL. BAI AND RECCE RESULTS

B. DETAILED COMMENTS CONCERNING THE OPERATIONAL ASPECTS OF THE GAME:

CONTROLLER'S MEETING:

AT THE CONTROLLER'S MEETING THE RESULTS OF MAXWELL'S CAS. TARGET DAMAGE AND RECCE RESULTS WERE CONVERTED FROM UNIT IDS INTO UNIT SHORT TITLES. THIS PROCEDURE WAS NECESSARY BECAUSE MAXWELL'S DATA BASE WAS BUILT UPON UNIT IDS WHILE THE CARLISLE PLAYERS USED THE UNIT'S SHORT TITLE. CARLISLE USED SHORT TITLES BECAUSE THAT IS THE PROCEDURE IN ACTUAL OPERATIONS. SINCE A UNIT WAS IDENTIFIED AS HAVING BEEN ATTACKED BY MAXWELL (AND A LOSS WAS TAKEN), FIRST, THE REPORTED % REMAINING EFFECTIVE WAS DOUBLED. CARLISLE FACULTY FELT THAT THE BAI RESULTS ACHIEVED BY THE MAXWELL TWO MODEL WERE TOO HIGH. SECONDLY, THE CONTROLLER IN THE DIRECTOR MODE WENT FOR A UNIT SITREP. THE UNIT SITREP SHOWED THE UNIT'S REMAINING EFFECTIVENESS AS A PERCENT OF THE PREVIOUS DAYS PLAY. THIS EFFECTIVENESS WAS THE PRODUCT OF THE WEIGHTED FACTOR FROM MAXWELL'S TARGETING RESULTS. THE CONTROLLER IN THE DIRECTOR MODE THEN SET THE UNIT'S OPERATING STRENGTH. UNITALL SHALL

WAS ALL ACCOMPLISHED BEFORE THE PLAYERS BEGAN TO PLAY THE GAME. HOWEVER, AS THE CONTROLLERS GAINED MORE EXPERIENCE WITH THE MODEL IT WAS FELT THAT THIS METHOD OF BAI LOSSES DID NOT PROPERLY PORTRAY THE REAL PICTURE OF WHEN BATTLE LOSSES ACTUALLY OCCURED. THEREFORE, IT WAS DECIDED TO CALCULATE THE LOSSES AS NEAR TO ACTUAL MAXWELL STRIKE TIMES. THUS ALLOWING UNITS THAT WERE EITHER IN CONTACT OR ABOUT TO ENTER INTO CONTACT TO CONTINUE THEIR MISSIONS AND SUFFER COMBAT LOSSES. THESE LOSSES WERE THEN ADDED UPON AT THE STRIKE TIME. IN ADDITION, WITHOUT A COMMANDER KNOWING IN ADVANCE THAT ONE OF HIS UNITS HAD TAKEN LOSSES HE WAS UNABLE TO PLAN FOR COMMITMENT OF HIS RESERVES UNTIL LOSSES ACTUALLY OCCURED AND HE HAD TO REACT TO THOSE LOSSES. THIS CHANGE IN PROCEDURE CAUSED NO PROBLEMS AS LONG AS THE MODEL WAS SET ON SLOW RATE. HOWEVER, SETTINGS ON THE HIGHER RATES MADE IT EXTREMELY DIFFICULT TO ACCOMPLISH THIS OPERATION. IT IS RECOMMENDED THAT IN FUTURE GAMES THE MODEL BE SET SLOW ENOUGH THAT NEAR REAL TIME BAI RESULTS CAN BE PLAYED.

THE MOST FRUSTRATING AND DIFFICULT PROBLEM FACING THE CONTROLLERS WAS WHAT TO DO WITH THE RECCE RESULTS (THE DISCUSSION ON UNIT LOSING SIGHT TITLES ALSO APPLIES HERE). THE MAXWELL RECCE RESULTS REQUIRED HAND JAMMING IN ORDER TO MAKE A USEFUL PRODUCT FOR THE PLAYERS. THE CONTROLLER HAD TO EITHER A FLIGHT PATH OR FLIGHT TIMES IN ORDER TO FACILITATE FEEDING THE PLAYERS WITH RECCE RESULTS. THIS FLIGHT PATH OR TIME WAS PLOWN ON THE OPPOSING PLAYER'S SITUATION BOARD AND THE RESULTS OF WHAT WAS SEEN REPORTED TO THE REQUESTING UNIT. REPORTS WERE GIVEN AS AT HEX LOCATION - A TIME UNIT WAS OBSERVED DOING SOMETHING (SINCE THE MAXWELL RESULTS USUALLY INCLUDED ALMOST ALL OPPOSING UNITS THE CONTROLLER USUALLY CUT THE TIME BLOCK RESULTS TO 70% . THE FLIGHTPATH RESULTS REPORTED ALL UNITS THAT WERE ON THE MAXWELL LIST AND ALONG THAT FLIGHTPATH). THE OPPOSING PLAYER'S SIGHT

LEARNED THAT THE RECCE RESULTS WERE THEIR MOST VALUABLE INTELLIGENCE SOURCES AND PLANNED IMMEDIATE BAI STRIKES BASED UPON THE CONTROLLER'S REPORTS.

CAS SORTIES FROM MAXWELL WERE ASSIGNED TO GROUND COMBAT UNITS ACCORDING TO THE PLAYERS SCHEME OF OPERATION. THESE ASSIGNMENTS WERE MADE ON THE BASIS OF THE CINCENT'S APPROPRIATION GUIDANCE TO COMBAT AND THE CARLISLE PLAYERS RECOMMENDING TO TO MAXWELL PLAYERS A CAS AND THE PERCENTAGE BREAKOUT. ONCE THE NUMBER OF CAS SORTIES WERE KNOWN THE CONTROLLER IN THE DIRECTOR MODE ASSIGNED THE ACTUAL NUMBER SORTIES (THE NUMBER OF SORTIES CONSISTED OF THE PLAYER TO PLAYER PLANNING SORTIES MINUS ALL TWO MODEL GENERATED LOSSES) TO A SUPPORT MISSION. THE PLAYERS DID NOT KNOW THE DIFFERENCE BETWEEN PLANNED SORTIES AND ACTUAL SORTIES UNTIL THE NEXT SITREP.

GAME PLAY

DURING THE PLAY OF THE GAME CARLISLE AND MAXWELL PLAYERS COMMUNICATE BOTH BY TELEPHONE AND THE EDI MODEL 700. (SEE APPENDIX FOR DETAILS CONCERNING THE LOG-ON AND USER IDS). CONTROLLERS PERFORMED THE MAJOR FUNCTIONS OF INPUTTING MOVE ORDERS, FIRE MISSIONS AND RECCE REQUESTS. AT APPROXIMATELY 1200 HOURS THE PLAYERS (CONTROLLER) SUBMITTED THEIR CAS DISTRIBUTION, BAI PRIORITY LISTS, AND RECCE REQUESTS FOR THE FOLLOWING DAY TO MAXWELL. HOWEVER, SINCE THE CARLISLE AND MAXWELL COMPUTERS WERE NOT INTERACTIVE BAI REQUESTS HAD TO BE VERIFIED BY CONTROLLERS AS TO A UNIT ACTUALLY BEING ON THE GROUND AT THE TIME OF THE OF THE REQUESTED BAI. A CONVERSION OF UNIT SHORT TITLE INTO A UNIT ID. IF A UNIT WAS ACTUALLY LOCATED ON THE REQUESTED HEX THEN THAT BAI TARGET OR RECCE REQUEST WAS PASSED TO MAXWELL. PLAYERS ON BOTH SIDES SOON LEARNED THAT BY REQUESTING BAI TARGETS IMMEDIATELY AFTER RECEIVING RECCE INFORMATION THEIR CHANCES OF

HITTING A TARGET WERE SIGNIFICANTLY HIGHER THAN IF ONLY UTILIZED THE RTM INTELLIGENCE REPORTS AND CONSEQUENTLY THEIR REQUESTS TO CONTROLLERS FOR NEW TARGETS WERE INPUTTED IMMEDIATELY RATHER THAN BASED UPON OPERATIONAL PLANS FOR THE NEXT DAYS OPERATIONS. AT 0600 GAME TIME THE RTM MODEL WAS SET ON A TIME RATE OF ZERO. ORDERS FOR THE NEXT DAYS OPERATIONS WERE LOADED INTO THE COMPUTER AND PREPARATIONS WERE MADE TO SUBMIT LAND SITREPS TO MAXWELL.

SUBMISSION OF LAND SITREPS

IN ORDER FOR CARLISLE TO SUBMIT A LAND SITREP TO MAXWELL THE ALTOS MINICOMPUTER HAD TO BE STOPPED AND A COMBOOT ROUTINE INITIATED (SEE ATTACHED ENCLOSURE FOR DETAILS ON SUBMISSION OF A COMBOOT AND THE WARBOOT). EARLY ON IN THE GAME IT WAS DISCOVERED THAT THE CARLISLE CONTROLLERS HAD TO EXPUNGE EXCESS SITREPS FROM THE MEMORY OF THE MAILBOX. UNLESS THIS WAS ACCOMPLISHED MAXWELL RECEIVED ALL REPORTS RATHER THAN THE NEEDED LATEST REPORT. WHILE THE COMBOOT WAS IN OPERATION THE CONTROLLERS CALCULATED THE AIR LOSSES BY COMPARING THE MORNINGS ASSIGNED AIRCRAFT TO LATEST SITREP STATUS. UPON COMPLETION OF THE COMBOOT THE GAME WAS AGAIN LOADED THRU THE WARBOOT ROUTINE AND VARIOUS UNITS WERE FLOODED TO STRENGTH FOR THE NEXT DAYS GAME PLAY.

RECEIPT OF MAXWELL'S GAME RESULTS

AT APPROXIMATELY 2000 HOURS THE CARLISLE CONTROL TEAM WOULD UTILIZE THE EDT MODEL 700 TO CALL UP THE RESULTS OF TWX MODEL PLAY.

CARMAX FILE TRANSFER PROGRAM

The CARMAX file transfer program is designed to provide the U.S. Air War College remote telecommunications access to the intelligence files created by the TACOPS War Game. The procedures for using CARMAX follow. All user entries are underlined, all responses from the computer are in bold face print.

STEP 1: After completion of TACOPS war game play each day, the ALTOS computer must first be reconfigured to allow access to its files via telecommunications modem. This is accomplished by submitting a special procedure file to the operating system as follows:

OA>SUBMIT COMMBOOT

WARNING - The user should not attempt to interrupt this process under any condition. DO NOT use the control-C key abort feature or attempt to press the black boot button on the ALTOS while these actions are being performed.

After a few moments the following will appear:

OA> **CARMAX COMMUNICATION BOOT ROUTINE**

OA>

OA> **CAUTION: Please wait until program instructs you to**
OA> **press the "boot button" before proceeding!**

OA>

OA>PIP MPM.SYS=COMMBOOT.SYS<cr>

OA> **The ALTOS computer is now ready to be booted for use**
OA> **of the CARMAX war game transfer program.**

OA>

OA> **WARNING: DO NOT run 'EXEC' to start the war game in this mode.**

OA>

OA> **Please PRESS the black BOOT BUTTON on**
OA> **the front of the ALTOS.**

STEP 2: The user should then press the black button on the front panel of the ALTOS. This is commonly referred to as the "boot button." This action will cause the ALTOS computer to reboot the operating system using the necessary configuration required to access the computer by modem.

STEP 3: The computer is now ready to be accessed via remote telecommunication modem. When the caller has received acknowledgement on the modem that two way communications are in effect, the ALTOS should respond

After the caller has pressed the "RELEASE" key, the computer will respond with either a "2A>" or "3A>" message. The caller need only type "CARMAX" to begin the file transfer program operation. An example run of the CARMAX program is included on page 3.

STEP 4: After all reports have been listed, the ALTOS computer must be reconfigured to allow the TAC.OPS war game to operate. This is accomplished as follows:

OA>SUBMIT WARBOOT

After a few moments the computer will then respond with:

```
OA>                                WAR GAME BOOT ROUTINE
OA>
OA>          CAUTION: Please wait until program instructs you to
OA>                   press the "boot button" before proceeding!
OA>
OA>PIP MPH.SYS=WARBOOT.SYS[orm
OA>
OA>          The ALTOS computer is now ready to be booted for use
OA>          of the TAC.OPS war game.
OA>
OA>          Please PRESS the black BOOT BUTTON on
OA>          the front of the ALTOS.
```

STEP 5: The user then presses the boot button which will cause the ALTOS to reboot the operating system for running the TAC.OPS war game.

General information: The ALTOS can be operated from the terminals connected with it while in both configurations. All of the SCENARIO programs may be operated in both system configurations. The TAC.OPS war game CAN NOT BE PLAYED in the COMMBOOT configuration. Under no conditions should F-4 be called when the ALTOS is in this configuration. If the user is in doubt as to which system configuration is currently in effect, they may execute either submit file at any time. WARNING - after the submit files (WARBOOT or COMMBOOT) have been executed, all programs running on the ALTOS will be lost when the boot button is pressed. Be careful!

Access codes: These codes consist of from 1 to 10 characters in length and may be composed of any valid uppercase alphanumeric character. The access codes may be changed at any time by the user. The codes must be stored on both users (2A and 3A). The file consists of a code for the Blue, Red, and Director teams in that order. Creation or changing of the access codes is accomplished by running the program "ACCESS" while running under the appropriate user number.

NOTE: The caller responses are underlined computer responses
are in bold face type.

2A>CARMAX

To use this program, please terminate all responses
by pressing the "RETURN" or ENTER" key as appropriate.

After each report is listed, the user has the option to
reprint the report as often as desired.

WARNING: After a report is listed and no more copies are
requested, the report will be automatically deleted.

To obtain copies of all reports for your team -
Please enter your access code now: bluetest

There are 2 reports to be listed.

Report #1 for Blue team.

Land Situation Report as of +000455

Time of Report: +000655

Unit ID	Location	Activity	Destination	Strength
1GTA/FNT	BM031	avail		100 %

End of Report.

Do you desire a reprint of the above report? (Y/N): n

Report #2 for Blue team.

PERIODIC LOGISTICS REPORT AS OF +000455

Time of report: +000655

Unit ID	Current Activity	Est Hours of Supples at Current Activity			Amount of Supplies				
		ammo	other	POL	ammo	other	POL	nuke	chem
1GTA/FNT	avail	na	na	na	0	0	0		

End of Logistics Status Report

Do you desire a reprint of the above report? (Y/N): n

There are no more reports to be transferred.
Program terminating - good-bye.

2A>

SYLLABUS

ACADEMIC YEAR 1983

ADVANCED COURSES PROGRAM

JOINT WAR GAMING WITH THE
AIR WAR COLLEGE

US ARMY WAR COLLEGE, CARLISLE BARRACKS, PA 17013

28 MARCH - 3 JUNE 1983

B-123

REPORTS TO: 1. ADVANCE



DEPARTMENT OF THE ARMY
US ARMY WAR COLLEGE
CARLISLE BARRACKS, PENNSYLVANIA 17013

REPLY TO
ATTENTION OF

AWCAG

28 March 1983

SUBJECT: Syllabus, "Joint War Gaming with the Air War College,"
Advanced Course, Academic Year 1983

TO: SEE DISTRIBUTION

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FOR THE COMMANDANT:

WILLIAM T. LEGGETT, JR.
Colonel, Infantry
Secretary/Chief of Staff

DISTRIBUTION:

01
DWC (35)

B-124

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US ARMY WAR COLLEGE
Carlisle Barracks, Pennsylvania 17015

SYLLABUS
ADVANCED COURSE

28 March 1953

JOINT WAR GAMING WITH THE AIR WAR COLLEGE

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JOINT WAR GAMING WITH THE AIR WAR COLLEGE
(CARMAX '83)

SECTION I

COURSE DESCRIPTION

1. OBJECTIVES.

a. To design, develop, and test a computer-assisted war gaming exercise in direct coordination and operation with the USAF Air War College.

b. To demonstrate the capabilities of the jointly developed war gaming program to subsequently exercise the current Air/Land Battle doctrine.

c. SCOPE. This course will be designed by the students to meet the above objectives. The students will be introduced to the processes necessary for the development and conduct of war gaming exercises. They will examine and evaluate the procedures for the operation of a joint war game when players reside at two distant locations. Finally, they will develop and recommend procedures and actions which will lead to enhancement of the exercise for expanded play.

d. METHODOLOGY. The students will work individually and as a group in close cooperation and liaison with a similarly organized group from the Air War College to develop all the procedures necessary for the conduct of a war gaming exercise designed to test current concepts and doctrine for the joint operation of air and ground forces in a high-intensity conflict.

e. COURSE RELATIONSHIP. This course provides the student with the opportunity to understand the influence war gaming has on the development of command decisionmaking processes and its subsequent value in supporting realistic command and staff training at a relative low cost.

f. DETAILED PROGRAM. The Joint War Gaming planning calendar indicates only those specific activities scheduled for the conduct of the actual war gaming exercise. The requirements of this project and its implementation will be developed by the group as part of their planning processes.

g. COURSE REQUIREMENTS. The group selected for this course will be responsible for the complete development of all actions necessary to design and conduct a war gaming exercise in conjunction with the Air War College. This includes the complete documentation of the war game and its evaluation.

h. FACULTY ORGANIZATION. The faculty organization for this course will be as follows:

Chairman, Department of War Gaming COL R. M. Macedonia

Advanced Course Coordinator/Instructor LTC John H. Matthews

Group Leader/Adviser LTC E. G. Tezak

Air War College Coordinators COL Dean Pappas, USAF
MAJ Ken Anderson, USAF

AD-A130 943

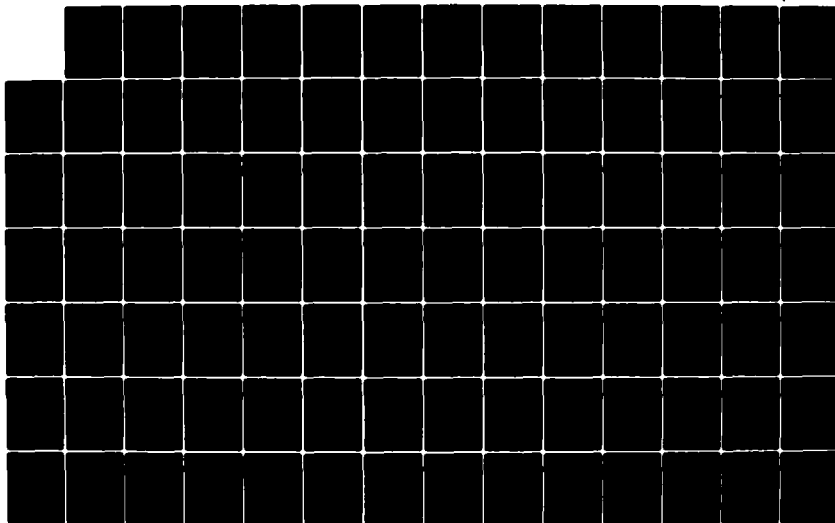
CARMAX 83 A JOINT WAR GAMING RESEARCH PROJECT(U) ARMY
WAR COLL CARLISLE BARRACKS PA JUN 83

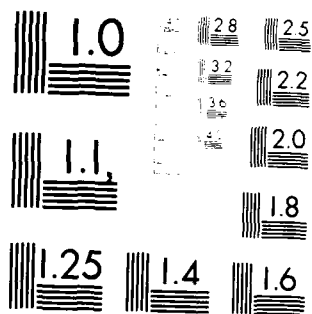
3/4

UNCLASSIFIED

F/G 15/7

NL





MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

PLANNING CALENDAR

JOINT WAR GAMING WITH THE AIR WAR COLLEGE
(JWG)

MONDAY, 28 MAR p.m. JWG-01 INITIAL GAME PREPARATIONS	TUESDAY, 29 MAR p.m. JWG-02 CONTINUED GAME PREPARATIONS	WEDNESDAY, 30 MAR p.m. JWG-03 FINAL GAME PREPARATIONS	MONDAY, 4 APR p.m. JWG-04 COMMENCEMENT OF HOSTILITIES: DAY 1 OPERATIONS	TUESDAY, 5 APR p.m. JWG-05 DAY 2 OPERATIONS
WEDNESDAY, 6 APR p.m. JWG-06 DAY 3 OPERATIONS	THURSDAY, 7 APR 0800-1630 JWG-07 DAY 4 OPERATIONS	FRIDAY, 8 APR 0800-1630 JWG-08 DAY 5 OPERATIONS AND GAME CONCLUSION	MONDAY, 25 APR p.m. JWG-09 INITIAL DISCUSSION LESSONS LEARNED	MONDAY, 16 MAY p.m. JWG-10 FINAL REPORT AND REVIEW OF EXERCISE

SECTION II

CLASS DESCRIPTION

During the period 21-25 March, the war gaming group will be conducting the initial planning efforts associated with the implementation of the strategic employment of US ground forces to include logistical requirements in the NATO environment to support an imminently threatened hostile conflict. This planning will include liaison and coordination with the elements of a similarly organized air planning staff.

JWG-01: Monday, 28 March 1983. Initial Game Preparations. This period will be devoted to the initial organization and set up of the war gaming exercise room to include maps, tables, computers, and communication links to Maxwell Air Force Base. Other actions taken in accordance with group developed procedures.

JWG-02: Tuesday, 29 March 1983. Continued Game Preparations. The group will continue to refine the plans necessary for the conduct of air/ground operation against a hostile force in the NATO Central Region. Administrative requirements for the conduct of the joint war game will be checked and revised as necessary.

JWG-03: Wednesday, 30 March 1983. Final Game Preparations. The group will take the necessary steps to insure that the war game activities will begin as scheduled on Monday 4 April. All gaming requirements will be verified and validated in coordination with the Air War College group.

JWG-04--JWG-08: Monday-Friday, 4-8 April 1983. Conduct of the Joint War Game. The group conducts the actual play of a joint air/land war game in direct cooperation with the Air War College. In addition, recommended changes, modifications, and enhancements will be subjects of concern throughout the game play.

JWG-09: Monday, 25 April 1983. Initial Discussion-Lessons Learned. This period will be organized by the group to discuss the conduct of the joint game and what lessons were learned from the exercise. Subjects to be discussed include procedures and areas for game improvement. Organization of the group for the development of the final after-action report will be decided.

JWG-10: Monday, 16 May 1983. Review of the Exercise and Final Report. An informal review of the joint war gaming exercise will be conducted with representatives of the Air War College. An informal briefing will be given which outlines the contents of the final report and encompasses all aspects of the joint war gaming exercise.

APPENDIX I

SELECTED BIBLIOGRAPHY

- Barbara, James C., and Brown, Robert F. "Deep Thrust on the Extended Battlefield." Military Review, Vol. 62, October 1982, pp. 21-32. (Periodicals)
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- Dupuy, Trevor N. Numbers, Predictions, and War. Indianapolis: Bobbs-Merrill, 1978. (U310 G87)
- Gush, George. A Guide to Wargaming. New York: Hippocrene Books, 1980. (U310 G87)
- Madden, John A. Conceptual Design and Development of Joint War Game. Part 1. Research Paper. Carlisle Barracks: 16 December 1981. (ADA118916)
- Rand Corporation. Overview of the Air-Ground Actions Two-sided Engagement (AGATE) Simulation Model, by Jack R. Lind. Report R-2379-AF. Santa Monica: 1979. (U310 L55)
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- US Air Force. Air Force Manual 1-1: Functions and Basic Doctrine of the United States Air Force. Washington: 14 February 1979. (Mil. Pubs.)
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- US Department of the Army. Field Manual 100-2: The Soviet Army. Coordinating Draft. Washington: August 1982. (Mil. Pubs.)
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Army Troops, Organization and Equipment. Coordination Draft. Washington:
August 1982. (Mil. Pubs.)

US Department of the Army. Field Manual 100-5: Operations. Washington: 20
August 1982. (Mil. Pubs.)

ANNEX C: ADMINISTRATION

DISPOSITION FORM

For use of this form, see AR 340-15, the proponent agency is TAGCEN.

REFERENCE OR OFFICE SYMBOL	SUBJECT	DATE
AWCAG-A	Request for Rooms to Support the Joint War College War Gaming Exercise	19 November 1982 CMT 1 LTC Matthews/kan/3634
TO Secy/CofS	FROM Chmn, DWG	

1. References.

a. DF, Chmn, DMSPO, dated 28 Sep 81, subject: Joint War Game with the Air War College (Incl 1).

b. Memorandum, LTC Matthews, S&G Br, dated 14 Sep 82, subject: Joint Army/Air War College War Game (Incl 2).

c. Memorandum, LTC Matthews, S&G Br, dated 30 Sep 82, subject: Status Report--Joint Army/Air War College War Game (Incl 3).

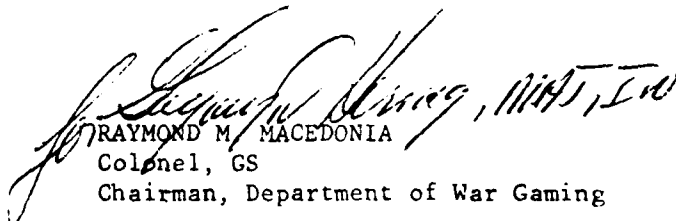
d. Memorandum, Secy/CofS, dated 5 Oct 82, subject: Military Studies Program--Joint Army/Air War College War Game (Incl 4).

2. Initial coordination and liaison with representatives of the Air War College, Maxwell Air Force Base reveal that the current curriculum schedule for both colleges will only facilitate the conduct of the Joint War College War Game during the period 21 March to 8 April. The attached schedule (Incl 5) has been tentatively established for the conduct of the game.

3. In order to adequately support this war gaming exercise, it will be necessary to have 2 adjacent seminar rooms set aside for the entire period of play. Seminar rooms C224 and C211 offer the best location for the conduct of the game. These rooms will facilitate the flow of potential observers, guests, the action of the students and controllers, and the installation of computers and communication equipment.

4. It is recommended that seminar rooms C224 and C211 be dedicated for use by the Department of War Gaming in support of the Joint War College War Gaming Exercise in accordance with the schedule at Inclosure 5.

5 Incl
as


RAYMOND M. MACEDONIA
Colonel, GS
Chairman, Department of War Gaming

CF:

Dir, S&G Br
Dir, CWG
Dir, C/MP Br
SP5 Jerry Smith, DWG

DA FORM 2496

REPLACES DD FORM 96, WHICH IS OBSOLETE.

Appendix I to ANNEX C

C-1

DISPOSITION FORM

For use of this form see AR 340-15, the proponent agency is TAGO

REFERENCE OR OFFICE SYMBOL

SUBJECT

AWCAG-A

Support of CARMAX 83

TO

FROM

DATE

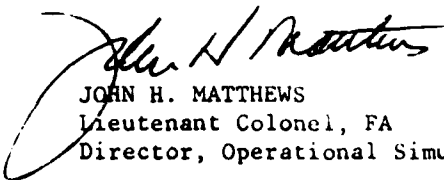
CMT 1

Chief, Info Tech Div
ATTN: MAJ Andrews

Dir, Operational Simulations 20 January 1983
Simulations & Gaming Branch LTC Matthews/nsm/3634

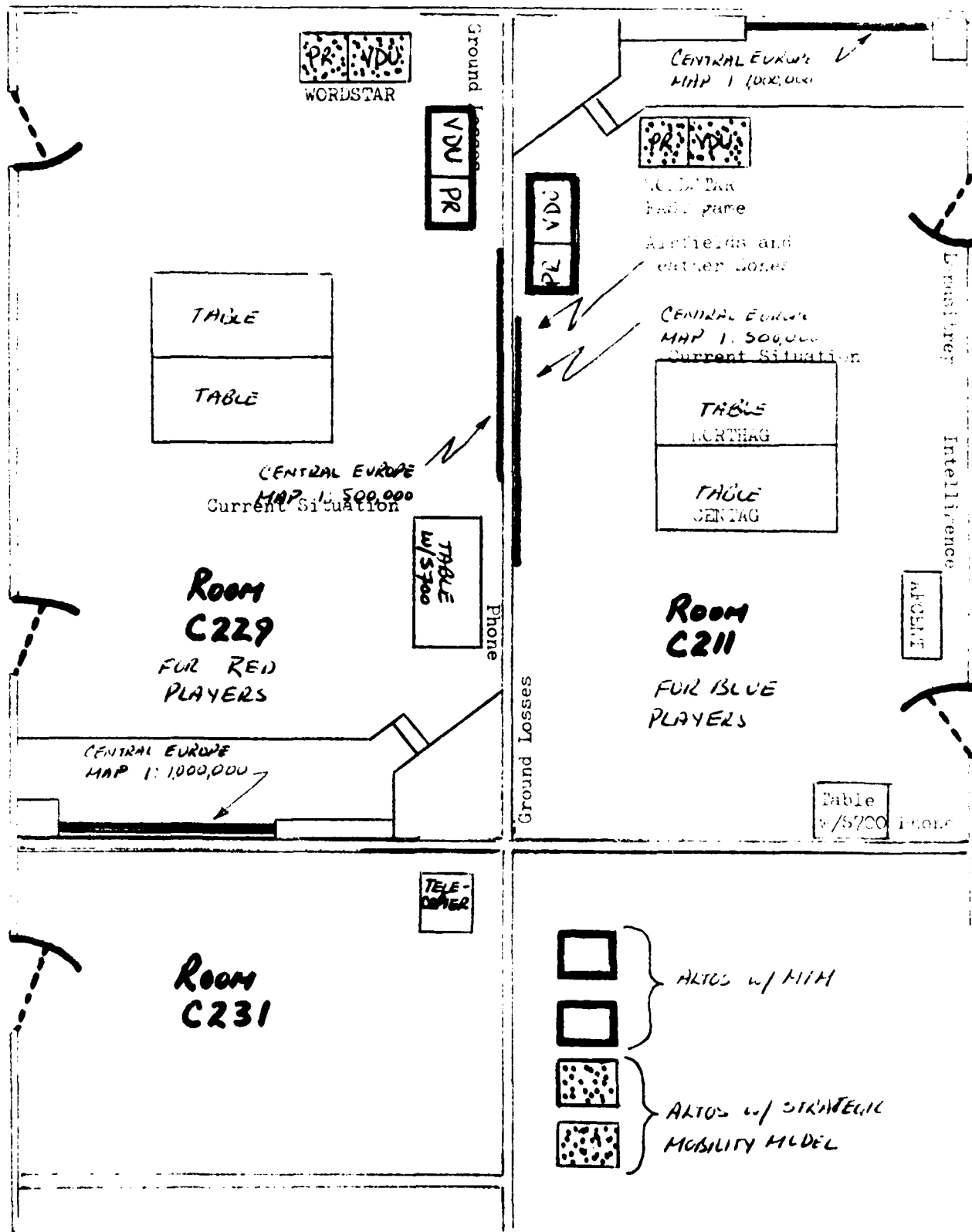
1. A recent change in plans for the conduct of the Joint Army/Air War College war gaming exercise CARMAX 83 has resulted in the need for two complete ALTOS Microcomputers to support the exercise.
2. One complete set will be installed as shown in attached diagram to play the war fighting portion of the exercise. The set will also be the one to which a modem will be attached to allow for direct access to disk by a Silent 700 located at the Air War College. This set will be used throughout the period of play. Following the end of the game on , it will remain installed until to facilitate the players in developing the final report of the game.
3. The second complete set will be installed as shown and will be used to play the strategic mobility portion of the exercise. This will take place only during the period. However, the machine will remain available until the termination of the entire exercise as a back up for the main game set.
4. Two Silent 700 portable terminal/printers will be used to allow players to have direct access to the H6000 at Maxwell AFB. A commercial telephone line will be available in each room to facilitate this requirement. One of these devices will be needed beginning with both available beginning.
5. Your review of this request will be appreciated. Please coordinate directly with the undersigned as to comments, changes, and/or recommendations.

1 Incl
As stated


JOHN H. MATTHEWS
Lieutenant Colonel, FA
Director, Operational Simulations

CF:
Chmn, DWG
Ops NCO, DWG
Cdr, USACC
Chief, Log & Maint Div

CARMAX 83



COMBAT POWER

BLUE	--	+ 75%
GREEN	--	50% to 74%
RED	--	- 49%

INTELLIGENCE

ORANGE	--	UNIT ID Unconfirmed
PINK	--	UNIT ID Confirmed
SILVER	--	Location Confirmed
YELLOW	--	Location Suspected
WHITE	--	Valid Target
BLACK	--	Moving

DISPOSITION FORM

For use of this form, see AR 340-15, the proponent agency is TAGO.

REFERENCE OR OFFICE SYMBOL

AWCAG-A

SUBJECT

Support of CARMAX 83

TO Ops NCO, DWG

FROM Dir, Operational Simulations
Simulations & Gaming Branch

DATE 20 January 1983

CMT 1

LTC Matthews/nsm/3634

1. Attached is a diagram which shows the layout necessary to support the Joint Army/Air War College war game exercise CARMAX 83 which is scheduled for the period

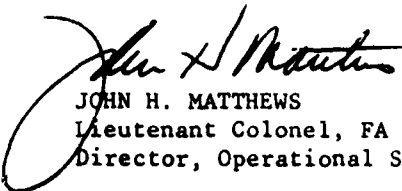
2. In addition to the arrangement of the two seminar rooms as indicated and the maps necessary to support the game, it is requested that the following supplies be acquired and made available in each room during the exercise:

- a. Pad of butcher paper with stand.
- b. Magnetized playing pieces (2 sets per room) NATO forces and Soviet/WP forces.
- c. Hex overlays.
- d. Five lined tablets.
- e. Felt-tip markers (red, blue, black).
- f. Four rolls of CHARTPAK (1/8" plastic tape in colors: red, yellow, blue, and black).

3. All of the supplies and equipment should be available NLT *3 or two hls punch*. In addition, the rooms should be set up NLT, as in the layout. The ALTOS Microcomputers will be placed in the rooms NLI

4. Any problems and/or changes should be referred to the undersigned.

1 Incl
As stated


JOHN H. MATTHEWS
Lieutenant Colonel, FA
Director, Operational Simulations

INDIVIDUAL SUMMARY

NAME:

POSITION TITLE:

RESPONSIBILITIES:

OBSERVATIONS:

RECOMMENDATIONS:

DAILY ACTIVITY SUMMARY MESSAGE FORMAT FOR
CARMAX 83

FROM: TWX ATOC, MAXWELL AFB, AL.
TO: MTM ASOC, CARLISLE BARRACKS, PA.
DATE TIME GROUP: 2 APR 83.
SUBJECT: DAILY ACTIVITY SUMMARY FOR CARMAX 83.

PART ONE OF SIX: CLOSE AIR SUPPORT SUMMARY FOR TWO ATAF

A. TIME BLOCK: 0600-1000, B. 1000-1400, C. 1400-1800, D. 1800-2200

1. E. 2200-0200, F. 0200-0600

2. TYPE AIRCRAFT/SORTIES SCHEDULED/SORTIES FLOWN

3.

4.

5.

6.

7.

8.

9.

10.

11.

12.

13.

14.

15.

DAILY ACTIVITY SUMMARY MESSAGE FORMAT FOR
CARMAX 83

FROM: THX ATOC, MAXWELL AFB, AL.
TO: MTM ASOC, CARLISLE BARRACKS, PA.
DATE TIME GROUP: Z APR 83.
SUBJECT: DAILY ACTIVITY SUMMARY FOR CARMAX 83.

PART TWO OF SIX: CLOSE AIR SUPPORT SUMMARY FOR FOUR ATAF

A. TIME BLOCK: 0600-1000, B. 1000-1400, C. 1400-1800, D. 1800-2200,

1. E. 2200-0200, E. 0200-0600

2. TYPE AIRCRAFT/SORTIES SCHEDULED/SORTIES FLOWN

3.

4.

5.

6.

7.

8.

9.

10.

11.

12.

13.

14.

15.

DAILY ACTIVITY SUMMARY MESSAGE FORMAT FOR
CARMAX 83

FROM: TWX ATOC, MAXWELL AFB, AL.
TO: MTM ASOC, CARLISLE BARRACKS, PA.
DATE TIME GROUP: 2 APR 83.
SUBJECT: DAILY ACTIVITY SUMMARY FOR CARMAX 83.

PARTTHREE OF SIX: BATTLEFIELD AIR INTERDICTION SUMMARY

A. TIME BLOCK:0600-1000, B THROUGH F SAME AS PARTS ONE & TWO.

1. TARGET NUMBER/TIME ON TARGET/ BOMB DAMAGE ASSESSMENT-PERCENT (%)DAMAGE

2.

3.

4.

5.

6.

7.

8.

9.

10.

11.

12.

13. .

14.

15.

DAILY ACTIVITY SUMMARY MESSAGE FORMAT FOR
CARMAX 83

FROM: THX ATOC, MAXWELL AFB, AL.

TO: MTM ASOC, CARLISLE BARRACKS, PA.

DATE TIME GROUP: 2 APR 83.

SUBJECT: DAILY ACTIVITY SUMMARY FOR CARMAX 83.

PART FOUR OF SIX: INTERDICTION SUMMARY

A. TIME BLOCK: 0600-1000, B THROUGH F SAME AS IN PARTS ONE, TWO, AND THREE.

1. TARGET NUMBER/TIME ON TARGET/ BOMB DAMAGE ASSESSMENT-PERCENT (%)DAMAGE

2.

3.

4.

5.

6.

7.

8.

9.

10.

11.

12.

13.

14.

15.

DAILY ACTIVITY SUMMARY MESSAGE FORMAT FOR
CARMAX 83

FROM: TWX ATOC, MAXWELL AFB, AL.

TO: MTM ASOC, CARLISLE BARRACKS, PA.

DATE TIME GROUP: 2 APR 83.

SUBJECT: DAILY ACTIVITY SUMMARY FOR CARMAX 83.

PART FIVE OF SIX: WEATHER ZONES AND CONDITIONS.

A. TIME BLOCK: DAY (0600-1300), B. NIGHT (1300-0600)

1. WEATHER ZONES 1 THROUGH 18 ARE AS NOTED BY PARAGRAPH NUMBER.
2. WEATHER CONDITIONS: GOOD 3000 FEET/ 5 NM OR BETTER (EXPECTED)
3. FAIR 1000 FEET/ 2 NM OR BETTER (EXPECTED)
4. POOR LESS THAN 1000 FEET/ 2 NM (EXPECTED)
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.
- 11.
- 12.
- 13.
- 14.
- 15.

DAILY ACTIVITY SUMMARY MESSAGE FORMAT FOR
CARMAX 83

FROM: TWX ATOC, MAXWELL AFB, AL.

TO: MTM ASOC, CARLISLE BARRACKS, PA.

DATE TIME GROUP: 2 APR 83.

SUBJECT: DAILY ACTIVITY SUMMARY FOR CARMAX 83.

PART SIX OF SIX: LOGISTICS

A. TIME BLOCK: DATE REQUIRED.

1. MOVE TO/MOVE FROM/SHORT TONS/CUBIC FEET.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.
- 11.
- 12.
- 13.
- 14.
- 15.

APPENDIX L
AIR ALLOCATION FORM

NATO GAME _____
GAME TURN _____

SIDE _____

SECTOR _____ NO. OF A/C _____

RESULTS

MISSION PERCENTAGES:	MAXIMUM	
	<u>NATO</u>	<u>PACT</u>
COUNTERAIR _____	90	95
CLOSE AIR SUPPORT _____	75	40
INTERDICTION _____	75	55

A/C LOST _____
AIR POINTS _____
SUPPLY UNITS _____
UNIT MOVEMENT _____
POMCUS SITES _____

SECTOR _____ NO. OF A/C _____

RESULTS

MISSION PERCENTAGES:	MAXIMUM	
	<u>NATO</u>	<u>PACT</u>
COUNTERAIR _____	90	95
CLOSE AIR SUPPORT _____	75	40
INTERDICTION _____	75	55

A/C LOST _____
AIR POINTS _____
SUPPLY UNITS _____
UNIT MOVEMENT _____
POMCUS SITES _____

SECTOR _____ NO. OF A/C _____

RESULTS

MISSION PERCENTAGES:	MAXIMUM	
	<u>NATO</u>	<u>PACT</u>
COUNTERAIR _____	90	95
CLOSE AIR SUPPORT _____	75	40
INTERDICTION _____	75	55

A/C LOST _____
AIR POINTS _____
SUPPLY UNITS _____
UNIT MOVEMENT _____
POMCUS SITES _____

%

LARGE-SCALE ATTACK

TOTAL NATO AIRCRAFT LOSSES _____ ()

YES

RESULTS

TOTAL PACT AIRCRAFT LOSSES _____ ()

TYPE IV _____
TYPE V _____

27 MAR

		NORTHWESTERN FRONT							
		PT	AS	ATK	1	2	3	4	5
Polish Army									
8MDPF	BC97								
3MDPF	BE89								
20AFP	BI93								
11AFP	BF96								
12MPF	BL90								
Silesian Army									
9ADPS	BF82								
4MDPS	BF86								
15MPS	BD80								
5ADPS	BD82								
10APS	BL86								
Warsaw Army									
1MDFW	BJ78								
2MDFW	BN72								
16APW	BM77								

		WEST CENTRAL FRONT							
		PT	AS	ATK	1	2	3	4	5
2nd Guards TK									
94GM2	AZ88								
21MD2	BC85								
9TDGD	BH70								
16GT2	BF90								
25TD2	BE83								
11MDGD	BF60								
1MDGD	BJ54								
GMD & NGF									
8MDGD	AZ64								
4MDGD	BE65								
20TDN	BA67								
38TDN	BF68								
7TDGD	BB62								
20th Guards									
6GM20	AY59								
35GM20	AW55								
14GM20	BD60								
1st Guards TK									
27GM1	AX50								
11GT1	AZ52								
76TD1	BC51								
9TD1	BH56								
8th Guards									
20GM8	BE51								
39GM8	BF48								
57GM8	BG51								
79GT8	BJ50								
3rd Shock									
47GT3	BG59								
207GM3	BJ60								
106LT3	BJ64								
136LT3	BL62								

C-14

27 MAR

SOUTH WESTERN FRONT

	PT	AS	ATK	1	2	3	4	5	6	7
1st CZ & CGF										
19MDCZ	BI45									
2MDCZ	BG41									
18GMC	BL42									
321DC	BL48									
5TDC	BO51									
20MDC	BO51									
4th CZ & CGF										
48GMC	BO29									
22MDC	BO35									
4TDCZ	BK31									
1TDCZ	BI35									
OMG SWF										
21MDC	BO41									
47MDC	BO31									
31TDC	BO41									
Soviet ABN										
1ABUR	BN76									
2ABUR	BW76									
3ABUR	BN66									
4ABUR	BO43									
5ABUR	BO43									

SOVIET ROCKET ARTY

	PT	AS	ATK	1	2	3	4	5	6	7
Scud Brigades										
1SD2G	BH90									
2SD3S	BF80									
3SD20	BL78									
4SD8G	BF54									
5SD1G	BH62									
6SD1C	BO41									
Scaleboards										
1SBW	BO75									
2SBW	BO65									
3SBW	BO41									

C-15

CARMAX MOVEMENT FORM

CENTAG

DATE TIME GP _____

<u>UNIT ID</u>	<u>FROM</u>	<u>TO</u>
2MDGE	_____	_____
5MDGE	_____	_____
3ADUS	_____	_____
8MDUS	_____	_____
11ACR	_____	_____
3MDUS	_____	_____
1ADUS	_____	_____
2ACR	_____	_____
12ADGE	_____	_____
10ADGE	_____	_____
1MTDGE	_____	_____
4CMBG	_____	_____
1ADFR	_____	_____
3ADFR	_____	_____
5ADFR	_____	_____
16HDG	_____	_____
17HDG	_____	_____
18HDG	_____	_____
3PBUS	_____	_____
3LBUS	_____	_____
2LBGE	_____	_____
1LBUS	_____	_____
1LBFR	_____	_____
2CCGE	_____	_____
6CCGE	_____	_____
5CCUS	_____	_____
7CCUS	_____	_____
2TCC	_____	_____

CARMAX MOVEMENT FORM

NORTHAG

DTG _____

<u>UNIT ID</u>	<u>FROM</u>	<u>TO</u>
1DKD	_____	_____
13HDG	_____	_____
6MDGE	_____	_____
1MDNL	_____	_____
4MDNL	_____	_____
5MDNL	_____	_____
3ADGE	_____	_____
2ADUS	_____	_____
1ADGE	_____	_____
7ADGE	_____	_____
11ADGE	_____	_____
1ADUK	_____	_____
2ADUK	_____	_____
3ADUK	_____	_____
4ADUK	_____	_____
5FFJK	_____	_____
7FFUK	_____	_____
16MDBE	_____	_____
1MDBE	_____	_____
10MDBE	_____	_____
101ABD	_____	_____
3ACR	_____	_____
9IDUS	_____	_____
4MDUS	_____	_____
1PBGE	_____	_____
1LBGE	_____	_____
1LBUK	_____	_____
1LBBE	_____	_____
1PBUS	_____	_____
1CCNL	_____	_____
2CCGE	_____	_____
3CCUK	_____	_____
4CCBE	_____	_____
1TCN	_____	_____

FROM: COM _____ AG
TO: COM _____ AITF
DTG: _____

SUBJECT: CAS Distribution/BAI Priority

1. CAS Weight _____
2. BAL Weight _____
3. BAL Priority List Follows:

<u>Pgt ID</u>	<u>Corps</u>	<u>Description</u>	<u>Location</u>	<u>At of Birth</u>
---------------	--------------	--------------------	-----------------	--------------------

[illegible]

CARMAX CAS SUPPORT REQUEST

1. Support maneuver unit _____ from arty/air unit _____
with _____ systems.
2. Support maneuver unit _____ from arty/air unit _____
with _____ systems.
3. Support maneuver unit _____ from arty/air unit _____
with _____ systems.
4. Support maneuver unit _____ from arty/air unit _____
with _____ systems.
5. Support maneuver unit _____ from arty/air unit _____
with _____ systems.

LANÇE MISSION

1. Fire from _____ on location _____ volleys _____.
2. Fire from _____ on location _____ volleys _____.
3. Fire from _____ on location _____ volleys _____.
4. Fire from _____ on location _____ volleys _____.
5. Fire from _____ on location _____ volleys _____.

CARMAX OBSERVATION (CONTROLLER)

Date/Time _____

Name _____

OBSERVATION

COMMENTS

CARMAX OBSERVATION (BLUE TEAM)

Date/Time

Name

OBSERVATION

COMMENTS

CARMAX OBSERVATION (RED TEAM)

Date/Time: _____

Name: _____

Observation: _____

Comments: _____

FACSIMILE TRANSMITTAL HEADER SHEET						
Command		Name Office Symbol		Telephone No.	Authorized Releaser Signature	
From:						
To:					Date-time	Month Year
Classification	No. Pgs.	Precedence	Remarks			
Space Below For Communications Center Use Only						

FACSIMILE TRANSMITTAL HEADER SHEET						
Command		Name Office Symbol		Telephone No.	Authorized Releaser Signature	
From:						
To:					Date-time	Month Year
Classification	No. Pgs.	Precedence	Remarks			
Space Below For Communications Center Use Only						

FACSIMILE TRANSMITTAL HEADER SHEET						
Command		Name Office Symbol		Telephone No.	Authorized Releaser Signature	
From:						
To:					Date-time	Month Year
Classification	No. Pgs.	Precedence	Remarks			
Space Below For Communications Center Use Only						

ANNEX D: COMMUNICATIONS

C A R M A X 5 3

Subject: Instructions for the use of the Silent 700 Electronic Data Terminal

- Step 1: Dial the commercial telephone number for Maxwell to access the Honeywell computer. The number will be furnished by the CARMAX group at Maxwell
EX: 1-205-293-XXXX (the Xs will be the numbers furnished)
- Step 2: After receiving the steady tone place the receiver into the phone coupler on the rear of the Silent 700.
- Step 3: The printer will then type the following after you hit the RETURN key.
P: a series of numbers, EX. 01110121
P: TERMINAL ID
P: USERIDSPASSWORD?
P:
P: ~~XXXXXXXXXXXXXXXXXXXX~~
You must type in the user ID over the above obliterated line.
An example User ID is: FKADYC2\$THIRD/ZZZUZZZ
P: IDENT?
You must type in the Ident, example: E062C,10,J
- Step 4: The printer will respond with a message and the carriage will return and stop after an *.
- Step 5: If you desire to receive information from the Honeywell file the printer will inform you that you have information in your file by typing out (YOU HAVE MAIL) you must type in the following information.
O: FRN /PRINT,R
P: (Printer will respond with your message)
At the end of the message, hit the BREAK key and you will return to the system level denoted by *.
- Step 6: If you desire to send a message to another location, type as follows:
O: FRN /SEND,R
P:02/01/83.....(hour).....
P: USERID? (Type in the id of the user to whom you wish to send your message, example: FKADYC1)
P: MSG? (Begin typing message-- MSG? will continue to appear at the beginning of each line until you have finished your message. After the last MSG? appears simply hit the RETURN key and the message will be transmitted and the printer will return to the system level denoted by *.

Attached is a sample copy of the above information as printed on the Silent 700. All the information highlighted in yellow is the data that is printed out by the terminal. The other information is supplied by the operator of the terminal.

0111201 {

TERMINAL UD {
USERID\$PASSWORD? {

*K880688EASR0200000000#000
IDENT? {

0000000000

♦♦08.261♦♦PLEASE REMEMBER WE ARE HAVING BAD WEATHER SO SAVE FILES OFTEN♦♦♦

AWARDS 07.2 TSS ON 02/01/83 AT 13.533 - TERMINAL UD T01 {

*END*PRINT*P
02/01/83 13.54
END MAIL {

*END*END*P
02/01/83 13.55 {

USERID\$P\$ADTC1

MSG?I STILL HAVE NOT RECEIVED ANY INFORMATION FROM YOUR GROUP.
MSG?WE WERE ABLE TO RECEIVE SOME OF THE FORMATS RE THE CAR HITCHHIKING
MSG?TOMMY. DISREGARD THIS MESSAGE. I WILL TRY AGAIN AFTER YOU AND I
MSG?TALK ON WEDNESDAY CONCERNING THE INFORMATION THAT WE BOTH NEED
MSG?FOR THE CHARMAN GAME.
MSG? WILL BE IN A MIN

END
COMMAND UNKNOWN {

END

♦♦COST: \$ 0.57 TO DATE: \$ ~~2.36~~ 0%
♦♦ON AT 13.533 - OFF AT 13.607 ON 02/01/83 {

CARMAX 83

Passwords and Telephones

<u>PASSWORDS</u>	<u>USER</u>	<u>USER ID</u>
FKADYC1\$ODD	Maxwell Control	E062C,10,1
FKADYC2\$THIRD	Carlisle Control	E062C,10,1
FKADYC3\$COUNTY	Maxwell Blue Team	E062C,10,1
FKADYC4\$FARM	Carlisle Blue Team	E062C,10,1
FKADYC5\$HARDWOOD	Maxwell Red Team	E062C,10,1
FKADYC6\$SCOTCH	Carlisle Red Team	E062C,10,1

Telephone numbers to be used for access to the Honeywell Computer:

Commercial line:	1 - 205 - 293 - 2244	AUTOVON: 875 - XXXX
	" " " 7642	
	" " " 6923	

Telephone numbers to be used for the telecopier at Maxwell:

To send copy to Maxwell use commercial number or Autovon number for automatic receiving device at Maxwell:

Commercial: 1-205-293-2692	AUTOVON: 875-2692
----------------------------	-------------------

After transmitting first copy please call 875-5140 to confirm that the message has been received in good copy.

Telephone number of the telecopier at Carlisle in Room C231:

Commercial: 717-245-4822	AUTOVON: 242-4822
--------------------------	-------------------

To call the Maxwell players and control team:

Blue/control Team	Autovon 875 - 6124/6223/6301/6409
Red Team	Autovon 875 - 7831 (Maj Greg Varhaul)

To call the Carlisle players and control team:

Red/Control team	Autovon 242 - 3570/3204 (both Class A with Autovon and DDD)
Blue team	Autovon 242 - 4503/3969 (both Class A with Autovon and DDD)

ANNEX E: WAR GAME

FAST in Support of CARMAX

1. To modify FAST for CARMAX, distances, port capabilities, lift capabilities, units to be moved, and theater stockage levels had to be modified. All of the modifications are straightforward, but more research than was conducted this year would be required if the simulations were to be fully validated. The purpose this year was merely to determine whether available lift would be adequate to move the units in question before the time agreed by the CARMAX planners. Tests indicated that the agreed times were realistic provided that decisionmakers made full use of the scenario warning times.

2. Methodology:

- a. Distances were modified using the subprogram in XEXEC.
- b. Lift (air & sea) was modified using XEXEC. Primary changes included the addition of NATO wide-body and narrow-body aircraft and the addition of NATO sealift.
- c. Units to be lifted were drawn from the agreed CARMAX force list, modelled, and entered in FORCEREC. A copy of the resulting force list is at Incl 1. The force list includes ALCE, COSCOM and transportation elements having no lift requirements that were introduced to trigger enhanced throughput so that the advantages of deployment to Europe (vice Southwest Asia) could be reflected in the output. The force list is short since larger units can be built by repetitive shipment of a single listed element.
- d. Theater stockage was set very low (10 days of supply) and built up in 60 days to reflect the high level of war reserve stocks in Europe.
- e. The simulation was then run (Incl 2).

BASIC FORCE LIST

DATE: APRIL

PRIORITY

TOTAL NUMBER: 25

NO.	1:	POMCUS ARMOR BDE	4
NO.	2:	POMCUS MECH BDE	3
NO.	3:	INF BDE	5
NO.	4:	AIR ASLT BDE	1
NO.	5:	AIR LAV BDE	1
NO.	6:	CORPS HQ	1
NO.	7:	COSCOM #1	1
NO.	8:	COSCOM #1	1
NO.	9:	COSCOM #2	5
NO.	10:	CORPS ARTY W/ALANCE	4
NO.	11:	ALT. BDE ALT THBL	4
NO.	12:	IDA HP	2
NO.	13:	TRANS BDE	2
NO.	14:	CORPS ENG BDE	1
NO.	15:	SIG BDE	4
NO.	16:	12TH ALCE-PART 1	0
NO.	18:	F-7 SQUADRON	1
NO.	19:	F-4 SQUADRON	1
NO.	20:	F-10 SQUADRON	1
NO.	21:	F-15 SQUADRON	1
NO.	22:	F-16 SQUADRON	1
NO.	23:	F-111 SQUADRON	1
NO.	24:	F-100 SQUADRON	1
NO.	25:	BELONG	1

THIS PRINTOUT DEMONSTRATES THE FAST SIMULATION BEING USED TO DEVELOP INSIGHTS INTO THE PROBLEMS INVOLVED WITH REINFORCING EUROPE IN CASE OF AN EMERGENCY REQUIRING ADDITIONAL US MILITARY PRESENCE. THIS APPLICATION IS STILL IN THE RESEARCH/TEST PHASE--THE MODEL WORKS, BUT SOME OF THE PORT CAPACITIES AND LIFT AVAILABILITIES ARE NOT YET FULLY RESEARCHED. THIS MODEL IS STORED, PLAYED, AND MODIFIED ON THE SAME ALTUS MICROCOMPUTER AS THE SOUTHWEST ASIA VERSION.

THE AIR PRIORITY REFERENCE LIST IS:

PRIORITY: 1	FORCE UNIT: 17
PRIORITY: 2	FORCE UNIT: 17
PRIORITY: 3	FORCE UNIT: 18
PRIORITY: 4	FORCE UNIT: 19
PRIORITY: 5	FORCE UNIT: 20
PRIORITY: 6	FORCE UNIT: 21
PRIORITY: 7	FORCE UNIT: 21
PRIORITY: 8	FORCE UNIT: 22
PRIORITY: 9	FORCE UNIT: 24
PRIORITY: 10	FORCE UNIT: 18
PRIORITY: 11	FORCE UNIT: 19
PRIORITY: 12	FORCE UNIT: 19
PRIORITY: 13	FORCE UNIT: 20
PRIORITY: 14	FORCE UNIT: 20
PRIORITY: 15	FORCE UNIT: 21
PRIORITY: 16	FORCE UNIT: 21
PRIORITY: 17	FORCE UNIT: 24
PRIORITY: 18	FORCE UNIT: 23
PRIORITY: 19	FORCE UNIT: 23
PRIORITY: 20	FORCE UNIT: 19
PRIORITY: 21	FORCE UNIT: 19
PRIORITY: 22	FORCE UNIT: 19
PRIORITY: 23	FORCE UNIT: 20
PRIORITY: 24	FORCE UNIT: 24
PRIORITY: 25	FORCE UNIT: 24
PRIORITY: 26	FORCE UNIT: 19
PRIORITY: 27	FORCE UNIT: 20
PRIORITY: 28	FORCE UNIT: 1
PRIORITY: 29	FORCE UNIT: 1
PRIORITY: 30	FORCE UNIT: 2
PRIORITY: 31	FORCE UNIT: 2

AIR PRIORITY LIST

NUMBER OF UNITS BY AIRLIFT: 31

PRIORITY: 1	13TH ALCE-PART 1
PRIORITY: 2	13TH ALCE-PART 1
PRIORITY: 3	A-7 SQUADRON
PRIORITY: 4	F-4 SQUADRON

PRIORITY: 7 F-15 SQUADRON
 PRIORITY: 8 F-16 SQUADRON
 PRIORITY: 9 C-130 SQUADRON
 PRIORITY: 10 A-7 SQUADRON
 PRIORITY: 11 F-4 SQUADRON
 PRIORITY: 12 F-4 SQUADRON
 PRIORITY: 13 A-10 SQUADRON
 PRIORITY: 14 A-10 SQUADRON
 PRIORITY: 15 F-15 SQUADRON
 PRIORITY: 16 F-15 SQUADRON
 PRIORITY: 17 C-130 SQUADRON
 PRIORITY: 18 F-111 SQUADRON
 PRIORITY: 19 F-111 SQUADRON
 PRIORITY: 20 F-4 SQUADRON
 PRIORITY: 21 F-4 SQUADRON
 PRIORITY: 22 F-4 SQUADRON
 PRIORITY: 23 A-10 SQUADRON
 PRIORITY: 24 C-130 SQUADRON
 PRIORITY: 25 C-130 SQUADRON
 PRIORITY: 26 F-4 SQUADRON
 PRIORITY: 27 A-10 SQUADRON
 PRIORITY: 28 POMCUS ARMOR BDE
 PRIORITY: 29 POMCUS ARMOR BDE
 PRIORITY: 30 POMCUS MECH BDE
 PRIORITY: 31 POMCUS MECH BDE

THE SEA PRIORITY REFERENCE LIST IS:

PRIORITY: 1	FORCE UNIT: 7
PRIORITY: 2	FORCE UNIT: 15
PRIORITY: 3	FORCE UNIT: 4
PRIORITY: 4	FORCE UNIT: 4
PRIORITY: 5	FORCE UNIT: 4
PRIORITY: 6	FORCE UNIT: 5
PRIORITY: 7	FORCE UNIT: 10
PRIORITY: 8	FORCE UNIT: 2
PRIORITY: 9	FORCE UNIT: 3
PRIORITY: 10	FORCE UNIT: 2
PRIORITY: 11	FORCE UNIT: 13
PRIORITY: 12	FORCE UNIT: 6
PRIORITY: 13	FORCE UNIT: 12
PRIORITY: 14	FORCE UNIT: 7
PRIORITY: 15	FORCE UNIT: 5
PRIORITY: 16	FORCE UNIT: 11
PRIORITY: 17	FORCE UNIT: 14
PRIORITY: 18	FORCE UNIT: 16

SEA PRIORITY LIST

NUMBER OF UNITS BY SEALIFT: 15

PRIORITY: 1 COMBOM #1
 PRIORITY: 2 SUPPS ENG BDE
 PRIORITY: 3 AIR ASLT BDE
 PRIORITY: 4 AIR ASLT BDE
 PRIORITY: 5 AIR ASLT BDE
 PRIORITY: 6 AFM CAVAL REGT
 PRIORITY: 7 USMC ARMY W LANCE

PRIORITY: 10 INF BDE
 PRIORITY: 11 TRANS BDE
 PRIORITY: 12 COSCOM 1
 PRIORITY: 13 ADA GP
 PRIORITY: 14 COSCOM 2
 PRIORITY: 15 CUPPS HQ
 PRIORITY: 16 ARTY BDE ALL TUBE
 PRIORITY: 17 TRANS BDE
 PRIORITY: 18 SIG BDE

STRATEGIC DEPLOYMENT SIMULATION SUMMARY

FORCE DESCRIPTION	MODE	PRIORITY	LOAD DAY	BEGIN-APP	CLOSE
10TH ALCE-PART 1	AIR	1	1	1	1
10TH ALCE-PART 1	AIR	2	1	1	2
A-7 SQUADRON	AIR	3	1	1	2
F-4 SQUADRON	AIR	4	1	1	2
A-10 SQUADRON	AIR	5	1	1	2
F-15 SQUADRON	AIR	6	2	2	3
F-15 SQUADRON	AIR	7	2	2	4
F-16 SQUADRON	AIR	8	3	2	4
F-16 SQUADRON	AIR	9	3	4	4
A-7 SQUADRON	AIR	10	3	4	5
F-4 SQUADRON	AIR	11	4	5	5
F-4 SQUADRON	AIR	12	4	5	5
F-10 SQUADRON	AIR	13	5	6	6
A-10 SQUADRON	AIR	14	5	6	6
F-15 SQUADRON	AIR	15	5	6	6
F-15 SQUADRON	AIR	16	5	6	6
F-130 SQUADRON	AIR	17	6	6	6
F-111 SQUADRON	AIR	18	6	6	6
F-111 SQUADRON	AIR	19	8	6	6
F-4 SQUADRON	AIR	20	8	6	10
F-4 SQUADRON	AIR	21	9	10	11
F-4 SQUADRON	AIR	22	10	11	11
A-10 SQUADRON	AIR	23	10	11	12
C-130 SQUADRON	AIR	24	11	12	12
C-130 SQUADRON	AIR	25	11	12	12
F-4 SQUADRON	AIR	26	11	12	12
A-10 SQUADRON	AIR	27	12	13	14
POMCUS ARMOR BDE	AIR	28	13	14	14
POMCUS ARMOR BDE	AIR	29	13	14	15
POMCUS MECH BDE	AIR	30	14	15	15
POMCUS MECH BDE	AIR	31	14	15	15
COSCOM #1	SEA	1	1	14	14
CUPPS ENG BDE	SEA	2	1	14	14
AIR ASLT BDE	SEA	3	1	14	14
AIR ASLT BDE	SEA	4	1	14	14
AIR ASLT BDE	SEA	5	1	14	14
INF BDE	SEA	6	1	14	14
INF BDE	SEA	7	1	14	14
INF BDE	SEA	10	1	14	14
TRANS BDE	SEA	11	1	14	14
COSCOM 1	SEA	12	1	14	14
COSCOM 2	SEA	14	1	14	14
CUPPS HQ	SEA	15	5	18	18
ARTY BDE ALL TUBE	SEA	16	5	18	18
TRANS BDE	SEA	17	5	19	19
SIG BDE	SEA	18	5	19	19
ARM CAN REGT	SEA	6	1	19	19
COMIC ARTY W/LANCE	SEA	19	1	19	19
ADA GP	SEA	19	1	19	19

E-5

30-12
 Smt

CONCEPT OF OPERATIONS

1. Warsaw Pact operations against European NATO are organized along three strategic axes. To the northwest the Leningrad Military District and Northern Fleet conduct offensive operations against Norway. In the Balkans the South Western TVD conducts offensive operations to overrun Greece and Turkey to seize the Straits. In Central Europe the Western TVD directs operations to seize Federal Republic Germany, Holland, Belgium followed by an offensive into France to the English Channel.

The Western TVD deploys three fronts in its first echelon and two in its second strategic echelon, the basic organization and mission of those fronts is as follows.

a. Northern Front: the Northern Front, consists of three Polish Armies and an airborne/amphibious task force (divisional total). The mission is to seize the Jutland Peninsula and Danish Straits in order to gain control of the Baltic Sea and access to the North Sea. The subsequent mission is to seize Bremerhaven and Bremen cutting these ports off from southern Germany.

b. Central Front: The Central Front consists of two East German and five Soviet Armies (Divisions). The initial mission is to seize the West Bank of the Rhine River and the Saar-Ruhr industrial complex. Subsequent mission - advance into Benelux, and destroy forces and knock them out of war.

Follow on mission - attack into France from Northeast - seize channel ports.

Southern Front: The Southern Front consists of two Czechoslovakian armies and the Soviet Central Group of Forces, plus two Czechoslovakian divisions reserve. When the Soviet Southern Group of Forces and Hungarian forces enter Germany they become part of the Southern Front as well.

The initial mission of this front is to destroy NATO nuclear weapons in Bavaria, destroy US and FRG forces east of line Wurzburg - Munich and advance toward Stuttgart.

Subsequent mission is to destroy NATO forces, east of Rhine river, seize the Westbank of the Rhine between Strasbourg and Mannheim - and be prepared to support further operations in France.

Baltic Front: The Baltic front consists of four Soviet armies from Baltic and Belorussian military districts (15 divisions total). Its initial mission is to support the Northern and Central fronts by positioning one army in close support of each. These armies are prepared to be transferred

to command of Northern and Central fronts if needed. Subsequent mission is to pass between Northern and Central fronts and form northern arm of pincer to invade France.

Carpathian Front: The Carpathian front consists of four Soviet armies from Belorussian and Carpathian mil dist (16 divisions total)

Initial mission to support Central and Southern Fronts with one army each in close support. Armies prepared to shift subordination form commitment as required.

Subsequent mission pass south of Southern Front - conduct offensive into France forming southern arm of pincer.

Strategic Reserve: Supreme high command releases to theater commander 14 MRD, 9 TK divisions and 4 airborne divisions.

CENTRAL FRONT OPERATIONS PLAN

1. Enemy Situation. NATO forces in zone from north to south consist of elements of the West German I Corps, British I corps, Belgian I corps, German III Corps and US V Corps. Initial positions will be well forward in zone.

2. Mission: The central front attacks on D day to destroy NATO nuclear capability, destroy major troop formations in zone and eliminate Belgium, Netherlands, Luxemburg and West Germany from the war.

3. Concept of Operations

The front attacks along five axes of advance with one first echelon army on each. One army is deployed for use as an Operational Maneuver Group. An additional two armies will be made available from TVD on D+5 for use as a second echelon.

The main attack will be conducted by Army E in the Belgian zone and part of the UK Corps zone. It will be supported by Army D against the UK corps and by Army G against the W. German III corps.

Axis of attack will be through the Gottigen Corridor crossing the Weser river between Minden and Hoxler and reaching Padeborn. The army will destroy as much as possible of the Belgian I Corps east of Padeborn and encircle the British I corps from the south.

As soon as an opening has been achieved Army F will pass through Army G or to its immediate left flank and cross the Weser between Munden and Kassel.

Army F will act as Front Operational Maneuver group along an axis from Kassel to Koblenz.

Army F will seize crossing on the Rhine in conjunction with airborne divisions of the Supreme High Command. Enroute it will destroy NATO nuclear delivery weapons, Headquarters and rear area installations.

To the right of Army E, Army D will attack on an axis from Helmstedt to Hannover destroying the British I corps to the east of the Weser. It will cross the Weser river between Minden and Nienberg. In conducting its attack Army E will seek to hold the British corps in place as far east as possible to assist in its encirclement.

To the right of Army D, Army N will attack elements of the German I corps and elements of British I corps on an axis Wolfsburg - to Celle. It will split the two NATO Corps and envelop the British from the north.

The primary attack against German I corps will be made by Army C of Northern Front to the right of Army N. It will secure the right flank of Army N and force German I corps north.

To the left of Army E, Army G will attack the German III corps and force it south. Axis of offensive will be Mulhausen to Giessen, crossing the Weser river south of Kassel.

Army H will attack US V corps on an axis Fulda to Frankfort seeking to destroy US forces or hold them as far East as possible.

Army J of Southern Front will conduct secondary attack, against US VII corps on axis Meininger to Wurzburg.

Army Z acting as Front second echelon will be committed on D+5 on axis Paderborn to Osnabruck. It will exploit the success of Army E to complete the encirclement of British I corps and destroy NATO operational reserves east of Rhine river. It will continue the offensive on axis Osnabruck to Arnhem to reach the Rhine by D+

Army P acting in Front second echelon will be committed on D+5 on an axis Giessen to Rhine between Koblenz and Frankfurt/Wiesbaden. It will exploit the success of Army G to complete the encirclement of German III corps and US V corps from the north.

SOUTHERN FRONT OPERATIONS PLAN

1. Enemy situation: NATO forces in zone from north to south consist of US VII and German II corps.

2. Mission the Southern Front attacks on D-day to destroy NATO nuclear capability, destroy major troop formations east of the Rhine and seize Bavaria. On order it will support further offensive operations into Eastern France. It will seize Austria and defend Alpine avenues of approach from Italy.

3. Concept of operations

The front attacks along three axes of advance with one army on each. Czech and Hungarian divisions form front reserve.

The front main attack on the northern flank will be defined by Army J against the US VII corps to separate from US V corps. Axis of advance will be Meiningen to Wurzburg. Army K will conduct a secondary attack against US VII Corps on axis (Hof to Nurnberg.

Army L will conduct a secondary attack against German II corps on axis Fuerth to Regensburg.

While Armies J, K and L hold NATO forces in northern Bavaria, Armies W and X will advance rapidly through Austria to enter Germany between Passau and Salzburg. Austrian resistance will be bypassed or forced south into the Tyrol to be blocked by reserve divisions.

NORTHERN FRONT OPLAN

1. Enemy Situation: NATO forces in zone consist of Danish Army C (divisions) Netherland Corps (divisions) and part of German IV Corps and First German Corps (divisions). Initial defensive positions will be forward along international border.

Mission. The Northern Front attacks on D-day with Pomeranian, Silesian, and Warsaw Armies on line from North to South. To advance to North Sea Coast between Bremen and Northern Denmark, in coordination with amphibious/airborne landings in Jutland.

Concept of the Operation

Northern Front attacks on D-day with 3 armies abreast against Danish and West German Corps:

Army A (5 divisions) advances on axis Lubeck to Kiel against West German Corps to enter Denmark and link-up with airborne/amphibious divisions.

Army B advances against elements of West German Corps and Dutch Corps on axis Bader to Hamburg.

Army C advances against elements of West German and Dutch Corps on axis German border to Bremerhaven.

FIRST CINCINN FRONT

SECTORS	FIRST ECHELON	SUPPORT	SECOND ECHELON	RESERVE
DE	-----XXXX----- POMERANIA (A) 2MRDIV	ARMY BDE	2TK DIV	1MRDIV
GE	-----XXXX----- SILESIA (B) 1TDIV 2MRDIV	FRONT DIV ARMY BDE FRONT HV BDE MRL REGT	2TK DIV	
NL	-----XXXX----- WARSAW (C) 2MRDIV	ARMY BDE	1MRD	
GEI	-----XXXXX----- 2G TK.ARMY (N) 2MRDIV	NORTHERN CENTRAL ARMY BDE	2TK DIV	
UK	-----XXXX----- GDR MD V (D) 2MRDIV & NGF	ARMY BDE	1TK DIV	
BE	-----XXXX----- 20G. ARMY (E) 3MRDIV	FRONT DIV 2 ARMY BDE FRONT HV BDE MRL REGT	3TK DIV 1MRDIV	
GEIII	-----XXXX----- 1ST G.TK ARMY (G) 2TK DIV 1MRDIV	FRONT DIV ARMY BDE MRL REGT	1TK DIV	
USV	-----XXXX----- 8 G ARMY (H) 2MRDIV & GDR MDIII 2MRDIV	ARMY BDE MRL REGT CENTRAL	1TK DIV 1MRDIV	
USVII	-----XXXXX----- 3MRDIV CGF (J) & 1ST CZ ARMY (K) 2MRDIV	SOUTHERN FRONT DIV 2 ARMY BDE FRONT HV BDE MRL REGT	2TK DIV 1MRDIV 1TK DIV	
GEII	-----XXXXX----- 2MRDIV 1TK DIV	4CZ ARMY (L) ARMY BDE SOUTHERN	1TK DIV	
	-----XXXX----- 2TK DIV 1MRDIV 5MRDIV	SGF (W) HV ARMY (X) FRONT DIV 2 ARMY DIV MRL REGT	1MRDIV 1TK DIV	

TOTAL 31 MRD
FIRST 8 TK DIV
ECHELON

E-13

TOTAL 7 MRDIV
SECOND 18 TK DIV
ECHELON

ARMY FROM
SECOND ECHELON FRONTS

BLUE

D+5
FIRST
ECHELON

DE

-----XXXX-----
GE 1ST BALTIC (M)
2MR DIV ARMY ARTY
2TK DIV BDE
BALTIC
-----XXXX-----
NL

NORTHERN

-----XXXX-----
GE I CENTRAL

UK

-----XXXX-----
BE 1ST BELORUS ARMY (Z)
2TK DIV ARMY ARTY BDE
1MR DIV FRONT DIV
-----XXXX-----
GEIII 1ST CARD ARMY (P)
3MRD ARMY ARTY BDE

1ST CARD ARMY

USV

CENTRAL
-----XXXX-----
SOUTHERN

USVII

C2 RESERVE
2TK DIV

GEII

D+11 - 15
SECOND
ECHELON

-----XXXX-----
2ND BALTIC ARMY (T)
4MR DIV FRONT ARMY
DIV
1TK DIV ARMY BDE
HVY BDE
MRL REGT
-----XXXX-----

-----XXXX-----
2ND BELORUS ARMY (U)
1MR DIV ARMY BDE
2TK DIV

-----XXXX-----
3RD BELORUS ARMY (R)
4TK DIV

-----XXXX-----

-----XXXX-----
2ND CARD ARMY (U)
1MR DIV ARMY
3TK DIV BDE
FRONT DIV
HUE BDE

-----XXXX-----
3RD CARD ARMY (S)
4MR DIV ARMY BDE

-----XXXX-----

FRONT ARTY DIV

192 152 GUN
192 152 HOW
36 122 MRL
36 122 MRL
36 220 MRL
24 100 AT GUN
24 125 AT GUN
36 AT-5 MISSILE

ARMY ARTY BDE

48 152 GUN
48 152 HOW
24 100 AT GUN
12 125 AT GUN
27 AT-5 MISSILE

HVY ARTY BDE

24 203 HOW
24 240 MTRS

ARMY MRL REGT

36 122 MRL
18 220 MRL

CENTRAL FRONT SHOULD HAVE AT LEAST 5 ASSAULT HELICOPTER REGIMENTS TWO WITH ARMY F AND ONE WITH ARMY E, ONE FOR ARMY H AND N.

CONCEPT OF OPERATIONS

1. Warsaw Pact operations against European NATO are organized along three strategic axes. To the northwest the Leningrad Military District and Northern Fleet conduct offensive operations against Norway. In the Balkans the South Western TVD conducts offensive operations to overrun Greece and Turkey to seize the Straits. In Central Europe the Western TVD directs operations to seize Federal Republic Germany, Holland, Belgium followed by an offensive into France to the English Channel.

The Western TVD deploys three fronts in its first echelon and two in its second strategic echelon, the basic organization and mission of those fronts is as follows:

a. NorthWestern Front - The NorthWestern Front consists of three Polish armies and an Soviet airborne division (14 division total). The mission is to sever the Jutland Penninsula and Danish Straits in order to gain control of the Baltic Sea and access to the North Sea. The subsequent mission is to seize Bremerhaven and Bremen cutting these ports off from southern Germany.

b. WestCentral Front - The WestCentral Front consists of six Soviet and German armies and an Soviet airborne division (28 division total). The initial mission is to seize the West Bank of the Rhine River and the Saar-Ruhr industrial complex. Subsequent mission is to advance into Benelux and destroy remaining NATO forces. Follow-on mission will be attack into France from northeast and seize Channel ports.

c. SouthWestern Front - The SouthWestern Front consists of two Czechoslovakian and Soviet armies, one Soviet army and one Soviet airborne division (14 division total). The initial mission of the front is to destroy NATO nuclear weapons in Bavaria, destroy US and FRG forces in zone and advance toward Stuttgart. Subsequent mission is to destroy remaining NATO forces east of Rhine River, seize the Westbank of the Rhine between Strasbourg and Muelhouse. Follow-on mission is to support further operations into France.

NORTHWESTERN FRONT OPLAN

Enemy Situation - NATO forces in zone consist of Danish Army, Netherland Corps, and 1st German Corps. Initial defensive positions will be forward along international border.

MISSION - The NorthWestern Front attacks on D-Day to destroy NATO forces in zone. Advances to the North Sea coast at Bremerhaven to sever the Jutland penninsula and cause the capitulation of Denmark.

Concept of the Operation

Pomeranian Army (5 divisions) advances on axis Lubeck-Hamburg-Bremerhaven.

Silesian Army (5 divisions) advances against elements of 1st German Corps and 1st Netherland Corps on axis Celle-Nienburg.

Warsaw Army (3 divisions) deploys as the Front Operational Manuever Group to follow the Pomeranian Army and be prepared for deployment on axis Lubeck-Schleswig on order.

WESTCENTRAL FRONT OPLAN

Enemy Situation - NATO forces in zone from north to south consist of elements of the 1st German Corps, 1st British Corps, 1st Belgium Corps, 3rd German Corps, and V US Corps.

MISSION - The WestCentral Front attacks D-Day to destroy NATO nuclear capability and major troop formations in zone. Advances to the Rhine River and seizes the Westbank.

Concept of the Operation

The Front attacks along five axes of advance with one first echelon army on each. One army is deployed for use as an Operational Manuever Group. An additional two armies will be made available from TVD on D+5 for use as a strategic second echelon.

The main attack will be conducted by the 2nd Guards Tank Army in the UK Corps and Belgian Corps zone. It will be supported by the MDV/NGF and 20 Guards Armies. Axis of advance will be through the Gottigen Corridor crossing the Weser River between Hameln and Hoxter and proceeding through Paderborn. The three armies will destroy NATO forces east of the Rhine River in zone.

To the left of 20GA, the 1st Guards Tank Army will attack the 3rd German and US V Corps forcing them south and southwest. Axis of advance will be Fulda-Frankfurt.

8th Guards Army on the left will attack US V and US VII Corps on an axis Coburg-Mainheim to destroy NATO forces in zone and secure crossings of the Rhine River south of Frankfurt.

3rd Shock Army will deploy as Front Operational Manuever Group along an axis from Kassel to Koblenz. It will seize crossings of the Rhine in conjunction with airborne divisions of the Supreme High Command.

1st Belorus Army deployed as Front second echelon will be committed on D+5 on axis Paderborn-Munster. It will exploit the success of 2GTA to destroy NATO operational reserves east of the Rhine River and continue the offensive on axis Munster to Arnhem to reach the Rhine River by D+15.

1st Card Army deployed as Front second echelon will be committed on D+5 on an axis Erfurt to Rhine River between Koblenz

and Frankfurt/Wiesbaden. It will exploit the success of 20GTA and 1GTA to complete the destruction of 3rd German and US V Corps and secure the Westbank of the Rhine.

- 4 -

E-19

SOUTHWESTERN FRONT OPLAN

Enemy Situation - NATO forces in zone consist, from north to south, of US VII and 2nd German Corps.

MISSION - The SouthWestern Front attacks D-Day to destroy NATO nuclear capabilities and major troop formations east of the Rhine River. Front will be prepared to defend Alpine approaches from Italy. On order it will conduct further offensive operations into Eastern France.

Concept of the Operation

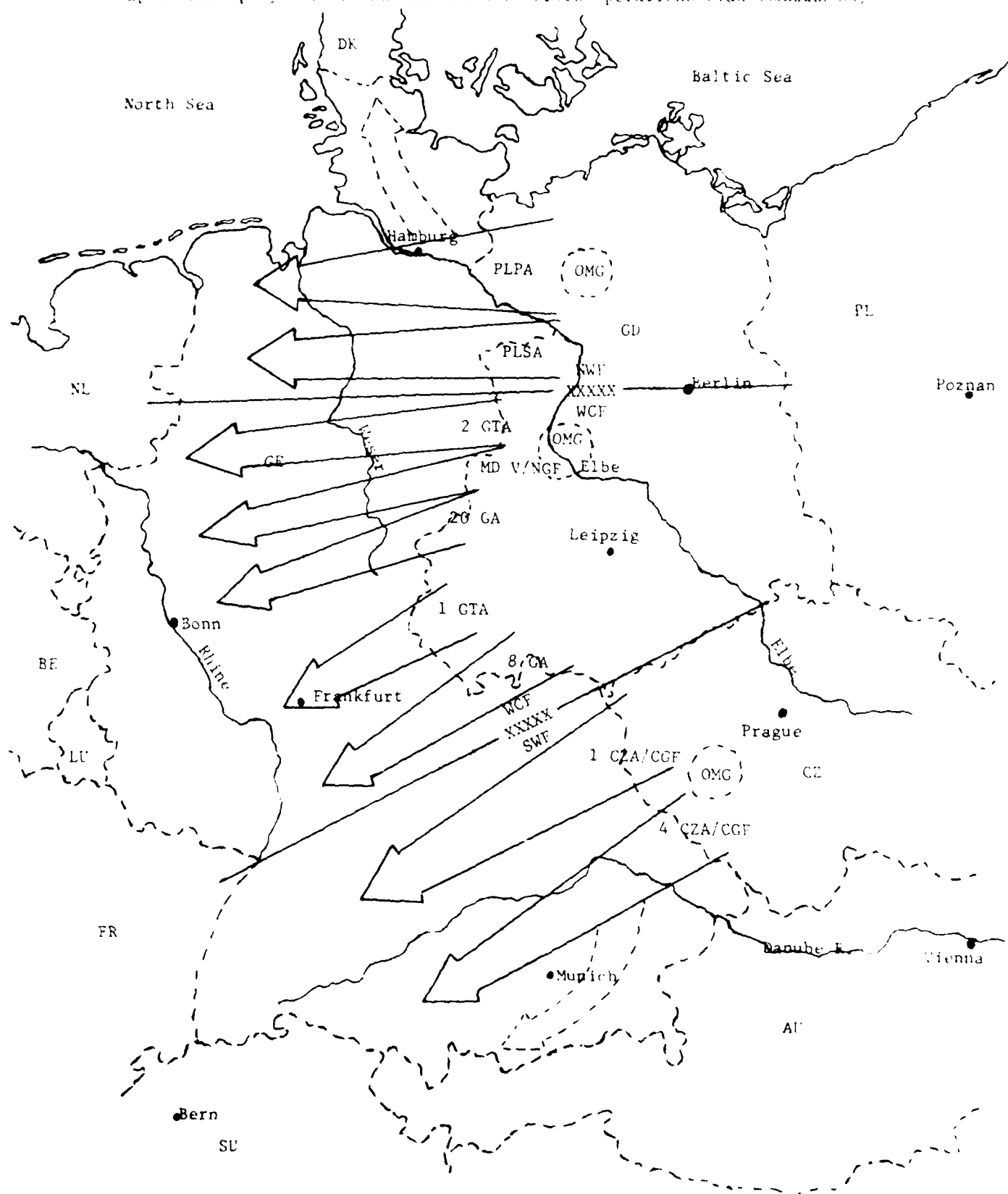
The front attacks along two axes of advance with two Czech and Soviet armies abreast and one Soviet army deployed for use as an Operational Manuever Group.

1st Czech Army conducts the Front main attack on the north along axis Nurnburg-Stuttgart against the US VII Corps to destroy NATO forces east of the Rhine River. Subsequent mission is to seize the Westbank of the Rhine vicinity Strasburg.

4th Czech Army conducts secondary attack against 2nd German Corps on axis Straubin-Augsburg-Memming to destroy NATO forces east of the Rhine River. Subsequent mission is to seize Westbank of the Rhine River vicinity Muelhouse.

Operational Manuever Group SouthWestern Front (OMG-SWF) to follow 4th CA. Be prepared for deployment along axis Staubin-Bad Tolz-Kempton south of Munchen to destroy NATO nuclear forces and defend Alpine avenues of approach.

Map to accompany the Warsaw Pact/Soviet Forces Operations Plan (OAKMAA 83)



SCHEDULE

DATE (actual)	DATE (plan)	
	MM	DD
25 March	00	D-5
28 March	01	D-4
	02	D-3
29 March	03	D-2
30 March	04	D-1
4 April	05	D
5 April	06	D+1
6 April	07	D+2
7 April	08	D+3
8 April	09	D+4

OPERATION PLAN 83

Reference: Map A, see attached sketch, 1:4,000,000.

Time Zone Used: Local.

Task Organization: Annex A (Task Organization).

1. SITUATION

a. Enemy Forces. Annex B (Intelligence) (Omitted).

b. Friendly Forces:

(1) AFNORTH will conduct defensive operations to halt Warsaw Pact amphibious operations in the Northern Region. Danish forces will move to occupy defensive positions in SCHLESWIG-HOLSTEIN Area and establish direct coordination and liaison with NORTHAG Forces.

(2) AFSOUTH will conduct defensive operations in ITALY- GREECE - TURKEY to halt Soviet attacks in the region. Prepared to conduct offensive operations into Albania and Bulgaria.

(3) French Forces including 1st, 2nd and 3rd French Armies will move to area FRANKFURT-MANNHEIM-STUTTGART and be prepared to conduct offensive operations into Czechoslovakia. OPCON to COMCENTAG on order.

c. Attachments and Detachments. Task A (Task Organization).

d. Assumptions:

(1) Control of French Army Forces will pass to NATO (SACEUR) at General Alert.

(2) German, Belgium, Dutch, and Danish Territorial Forces will contain guerrilla activity in rear areas.

(3) Warsaw Pact Forces will be reinforced by Soviet Air and Ground Forces. These forces will attack on 3 fronts with the objective of dividing NATO forces.

2. MISSION

Allied Forces in Central Europe conduct defensive operations to destroy attacking Warsaw Pact/Soviet Forces; seize the initiative and attack to restore the integrity of NATO territory. COMNORTHAG prepares to continue the attack into East Germany to defeat Warsaw Pact/Soviet military forces and secure access routes to Berlin. COMCENTAG prepares to continue the attack into Czechoslovakia to defeat Warsaw Pact/Soviet Forces and seize Prague; prepare to move to Poznan on order.

(OPLAN 83)

3. EXECUTION

a. Concept of Operation. Annex C (omitted).

(1) Maneuver. Allied Forces Central Europe in coordination with Allied Forces Northern Europe in the SCHLESWIG-HOLSTEIN region conduct defensive operations in zone focusing on the destruction of Warsaw Pact and Soviet Military Forces. Initially both Army Groups will defend forward along the international German Border and the GERMAN-CZECHOSLOVAKIAN Border. Attacking Warsaw Pact/Soviet Forces must be held east of a line BREMEN-MINDEN-FRANKFURT-INGOLSTADT-SALZBURG. Region Forces attack to the east to destroy Warsaw Pact/Soviet Forces in zone and restore the integrity of NATO territory. Prepare to conduct offensive operations to the east to secure routes to BERLIN and to seize PRAGUE and POZNAN. This operation will be conducted in three phases:

(a) Phase I. NORTHAG prepares to defend in zone with I NL Corps, I GL Corps, I UK Corps, and I BE Corps. NORTHAG authorized to make direct coordination and establish liaison with AFNORTH to insure cooperation with Allied Forces in SCHLESWIG-HOLSTEIN region. CENTAG prepares to defend in zone with III GL Corps, 5 US Corps, 7 US Corps, and II GE Corps. An order NORTHAG and CENTAG will occupy defensive position and prepare to defend along the international border.

(b) Phase II. Upon commencement of hostilities by the Warsaw Pact, AFCENT will defend in zone and destroy attacking Warsaw Pact Forces. Allows no penetration of Warsaw Pact forces west of the BREMEN-MINDEN-FRANKFURT-INGOLSTADT-SALZBURG line.

(c) Phase III. AFCENT conducts offensive operations to destroy Warsaw Pact/Soviet Forces and to restore and secure NATO territory in zone.

(2) Fires.

(a) Air.

1. COMAFFCE initial effort will be to establish and maintain air superiority. During Phase II, the majority of COMAFFCE capability will be directed toward counterair operations. Second priority will be given to offensive air support (CAS/BAI) with air interdiction operations receiving last priority.

2. Priority of air support to NORTHAG during Phase II and Phase III.

3. Appendix I (Air Fire Support) to Annex D (Fire Support) (omitted).

b. NORTHAG

(1) Defend in zone.

(2) Attack to restore NATO territory and secure border.

(3) Prepare to continue the attack to destroy Warsaw Pact Forces in zone and to secure access routes to Berlin.

c. CENTAG

(1) Defend in zone.

(OPLAN 83)

- (2) Attack to restore NATO territory and secure border.
- (3) Prepare to contain the attack to destroy Warsaw Pact forces in zone and to seize Prague.

d. French Forces

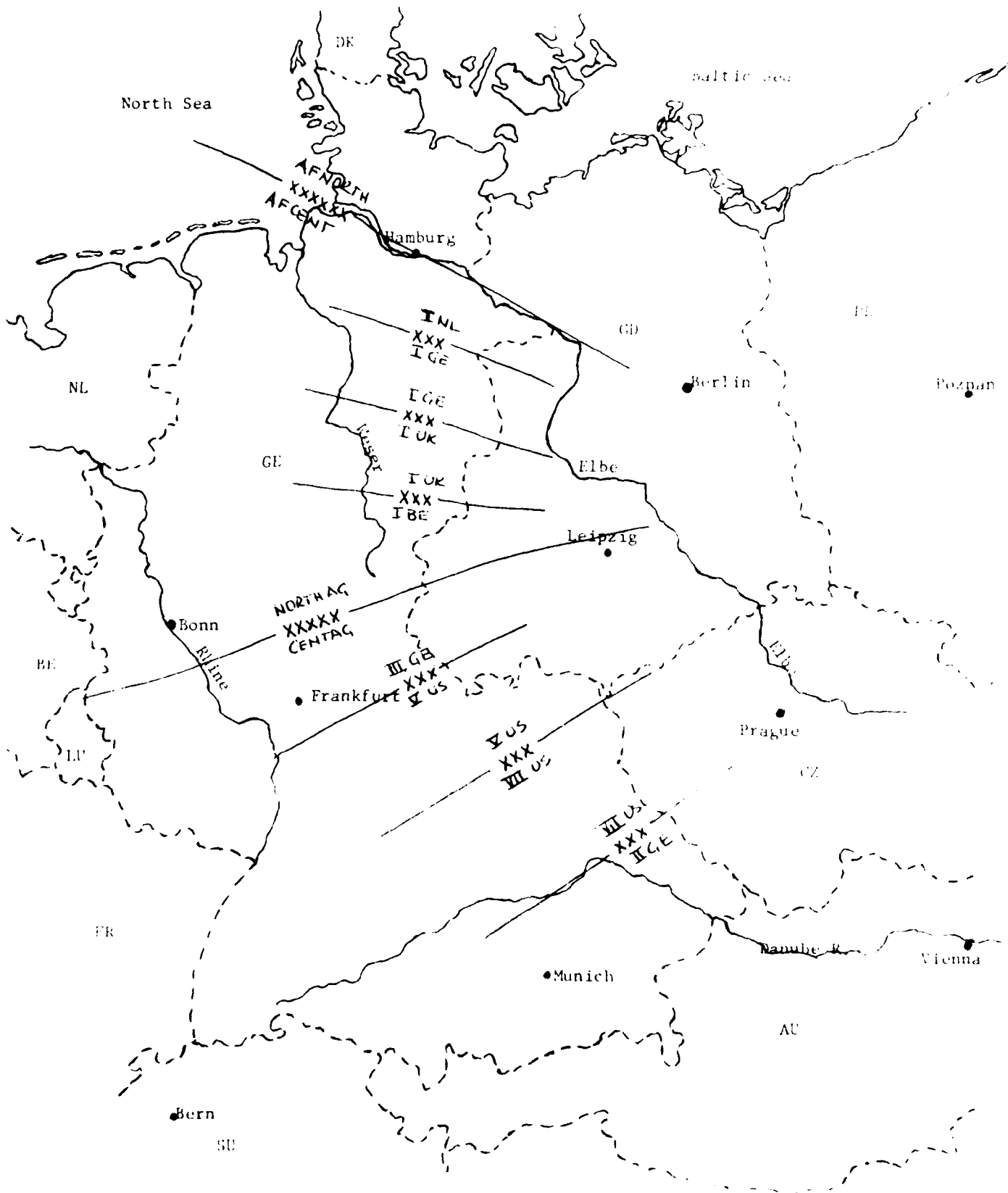
- (1) Prepare to occupy area vicinity FRANKFURT-MANNHEIM-STUTTGART.
- (2) On order OPCON passed to COMCENTAG.
- (3) Direct liaison and coordination authorized COMCENTAG upon receipt of OPPLAN 83.

Acknowledge.

CINCENT

OFFICIAL:
/s/Matthews

Annexes:



MAP A: ADJACENT BOUNDARIES
SCALE: 1:4000000

NORTHAG OPLAND 83

Reference: Map A, see attached sketch, 1:4,000,000.

Time Zone Used: Local.

Task Organization: Annex A (Task Organization).

1. SITUATION

a. Enemy Forces

b. Friendly Forces

(1) Allied Forces in Central Europe will conduct defensive operations to destroy ATKG WP/SF, regain the initiative and attacks to restore the integrity of NATO territory.

(2) AFNORTH will conduct defensive operations to halt Warsaw Pact amphibious operations in the Northcentral Region. Danish forces will move to occupy defensive position in SCHLESWIG-HOLSTEIN area and establish direct coordination and liaison with NORTHAG Forces.

(3) CENTAG conducts defensive operations to destroy attacking Warsaw Pact/Soviet Forces, regain the initiative and attacks to restore the integrity of NATO territory. Prepares to continue the attack into Czechoslovakia to defeat Warsaw Pact/Soviet Forces and seize Prague.

(4) AFCENT reserve, French Forces including 1st, 2d, and 3d French Armies will move into area FRANKFURT-MANHEIM-STUTTGART and be prepared to conduct offensive operations into Czechoslovakia - OPCON to COMCENTAG on order.

c. Attachments and Detachments. Annex C (Task Organization).

d. Assumptions

(1) Control of FAF will pass to SACEUR at General Alert

(2) German, Belgium, Dutch, and Danish territorial forces will contain guerrilla activity in rear areas.

(3) Warsaw Pact Forces will be reinforced by Soviet Air and ground forces. These forces will attack on 3 fronts with the objective of dividing NATO forces.

2. MISSION

NORTHAG conducts defensive operations to destroy attacking Warsaw Pact/Soviet Forces; seizes the initiative and attacks to restore the integrity of NATO territory; prepares to continue the attack into East Germany to defeat Warsaw Pact/Soviet military forces and secure access routes to Berlin; prepares to move to Poznan on order.

(NORTHAG OPLAN 83)

3. EXECUTION

a. Concept of Operations. Annex C (omitted).

(1) Maneuver. Allied Forces NORTHAG in coordination with AFNORTH in SCHLESWIG-HOLSTEIN region and CENTAG conduct defensive operations in zone focusing on destruction of Warsaw Pact and Soviet Military Forces in Zone. Initially defend forward in General Defensive Positions. Attacking forces must be held as of STOP Line (WESSER RIVER-MINTEN-FRANKFURT). Be prepared to conduct offensive operations to the east to restore the international boundary.

(2) Fires

(a) Air

1. Initial effort will be to establish and maintain air superiority will be given to offensive air support (CAS/BAI) with air interdiction operations receiving last priority.

2. Air support in order of priority to I (NL) CORPS and I (UK) CORPS.

3. Appendix I (Air Fire Support) to Annex D (fire support)(omitted)

b. I (NL) CORPS.

(1) Make direct coordination with AFNORTH forces.

(2) Do not commit 4 (NL) DIV (MECH) without prior approval of COMNORTHAG.

c. I (UK) CORPS.

Do not commit I (UK) AD without prior approval of COMNORTHAG.

d. I (BE) CORPS

Be prepared to release I (UK) AD to I (BE) CORPS on order.

e. I (BE) CORPS

Be prepared to receive I (UK) AD on order.

f. NORTHAG Reserve.

Upon arrival: 101st Airborne Div, 9th Inf Div, 4th Mech Div and 3rd Armored Cavalry Regiment constitute NORTHAG reserve.

Acknowledge.

COMNORTHAG

OFFICIAL:
/s/Burns

Annexes:

Copy no _____ of _____ copies
CENTAG OPLAN 83
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251600 Mar 83
USAWC

CENTAG OPLAN 83

Reference: Map A, see attached sketch, 1:4,000,000.

Time Zone used: Local

Task Organization: Annex A (Task Org)

1. SITUATION

a. Enemy Forces: Annex B (Intelligence)(omitted)

b. Friendly Forces:

(1) AFSOUTH conducts defensive operations to destroy attacking Warsaw Pact/Soviet Forces; seize initiative and attack to restore integrity of NATO territory. Defend initially along IGB and GERMAN-CZECHOSLOVAKIAN Border. Hold enemy east of BREMEN-MINDEN-FRANKFURT-INGOLSTADT-SALZBURG. Prepare to conduct offensive operations to east to secure routes to BERLIN and to seize PRAGUE and POZNAN.

(2) AFSOUTH conducts defensive operations to halt enemy forces in sector; prepare to conduct offensive operations into ALBANIA and BULGARIA.

(3) 1st, 2d, and 3rd FR Armies move to area FRANKFURT-MANNHEIM-STUTTGART and be prepared to conduct offensive operations into Czechoslovakia. OPCON to COMCENTAG 0/0.

(4) NORTHAG conducts defensive operations in sector, prepares to attack to restore IGB and continue to attack to destroy Warsaw Pact Forces and secure access routes to BERLIN.

c. Attachments and Detachments: Annex A, (Task Organization)

d. Assumptions:

(1) Control of FR forces passes to SACEUR at General Alert.

(2) FRG territorial forces contain guerrilla activity in rear areas.

2. MISSION

CENTAG deploys to initial defensive positions along international border; conducts defensive operations in sector to destroy enemy forces and to hold enemy east of FRANKFURT-INGOLSTADT-SALZBURG; prepare to conduct offensive operations to restore border; prepare to conduct attack to destroy enemy forces and seize PRAGUE.

3. EXECUTION

a. Concept of Operation (Annex C, Operations Overlay)

(1) Maneuver. CENTAG defends in sector with I GE Corps on the left (north), V US Corps, VII US Corps, and II GE Corps on the right (south). Initially defend in General Defensive Positions. Attacking WP/Soviet forces must be held forward of a line FRANKFURT-INGOLSTADT-SALZBURG. Be prepared to attack on order to restore NATO territory and to continue the attack to secure a line ERFURT-LEIPZIG-DARL MARX STADT-DRESDEN-PRAGUE-POZAN-ESRAK-NICE-LIGKAYA destroying WP/Soviet forces in zone. The operation will be conducted in three phases:

(a) Phase I. CENTAG prepares to occupy GDP positions on order. II GE Corps authorized to make direct coordination and establish liaison with _____ All CORPS be prepared to exchange liaison officers with French Army Forces on order.

(b) Phase II. Upon commencement of hostilities CENTAG will defend in sector and destroy attacking forces while allowing no penetration of a line FRANKFURT-INGOLSTADT-SALZBURG.

(c) Phase III. CENTAG conducts offensive operations to destroy WP/Soviet forces and restore and secure NATO territory in zone. Be prepared to continue to attack across the IGE/CZECH border.

(2) Fires.

(a) Air

1. 4th AFTAF initial effort during Phase I to establish and maintain air superiority. During Phase II, priority will be directed toward counterair operations. Second priority will be given to offensive air support (CAS/BAJ) with air interdiction operations receiving last priority.

2. Priority of air support to III GE Corps during Phase II; to VII US Corps during Phase III.

3. Appendix 1 (Air Fire Support) to Annex D (Fire Support)(omitted).

(b) Field Artillery

1. Priority for field artillery support to III GE Corps during Phase II, to VII US Corps during Phase III.

2. Appendix 2. (Artillery Fire Support) to Annex D (Fire Support) (omitted).

(c) Air Defense Artillery. Annex E (Air Defense).

(d) Nuclear

(1) Restrictions on nuclear fires. Annex D (Fire Support).

(2) Appendix 3 (Assignment of Nuclear Weapons) to Annex D (Fire Support).

g. III GE Corps

(1) Defend in sector

(2) Be prepared to attack to restore NATO territory and secure border.

OPLAN 83

(3) Be prepared to continue attack to destroy WP forces in sector and to seize ERFURT.

(4) Be prepared to continue attack to secure LEIPZIG.

c. V (US) Corps

(1) Defend in sector

(2) Be prepared to attack to restore NATO territory and secure border.

(3) Be Prepared to continue attack to destroy Warsaw Pact forces in zone and to seize KARL MARX STADT.

(4) Be prepared to continue attack to secure DRESDEN.

d. VII (US) Corps

(1) Defend in sector

(3) Be prepared to continue attack to destroy Warsaw Pact forces in zone and to seize PRAGUE.

(2) Be prepared to attack to restore NATO territory and secure border.

(4) Be prepared to continue attack to seize POZNAN.

e. II GE Corps

(1) Defend in sector

(2) Be prepared to attack to restore NATO territory and secure border.

(3) Be prepared to continue attack to destroy Warsaw Pact force in zone and to seize ESRAK NICE.

(4) Be prepared to continue attack to secure and assist in the seizure of LIBLAYA.

f. Rescue

(1) First French Army: priority of employment initially in Zone III GE Corps; be prepared to continue attack in zone to destroy Warsaw Pact forces and to seize PRAGUE.

(2) Second French Army: priority of employment initially in zone of V (US) Corps; be prepared to continue attack in zone to destroy WP forces and to seize PRAGUE.

(3) Third French Army: priority of employment initially in Zone VII (US) Corps; be prepared to continue attack in zone to destroy WP forces and to seize PRAGUE.

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g. Coordinating Instructions.

(1) Phase I coordinating points as indicated on overlay.

(2) Attachments, detachments and boundaries, unless otherwise directed, are effected 040700 April 83.

(3) Annex F (Chemical)(Omitted).

(4) Annex G (Engineer)(Omitted).

(5) Annex H (Civil-Military Operations)(omitted).

(6) Annex I (Unconventional Warfare)(omitted).

(7) Annex J (Rear Area Security)(omitted)

(8) Annex K (Cover and Deception)(omitted).

(9) Annex L (Electronic Warfare)(omitted).

4. SERVICE SUPPORT

a. Admin/Log Order 7

b. Material and Services

(1) III GE Corps has priority on supplies and transportation - Phase II.

(2) VII (US) Corps has priority on supplies and transportation - Phase III.

5. COMMAND AND SIGNAL

a. Signal

(1) Annex M (CE).

(2) CEOI indes 1-4.

b. Command. CENTAG main CP vicinity MANNHEIM.

Acknowledge.

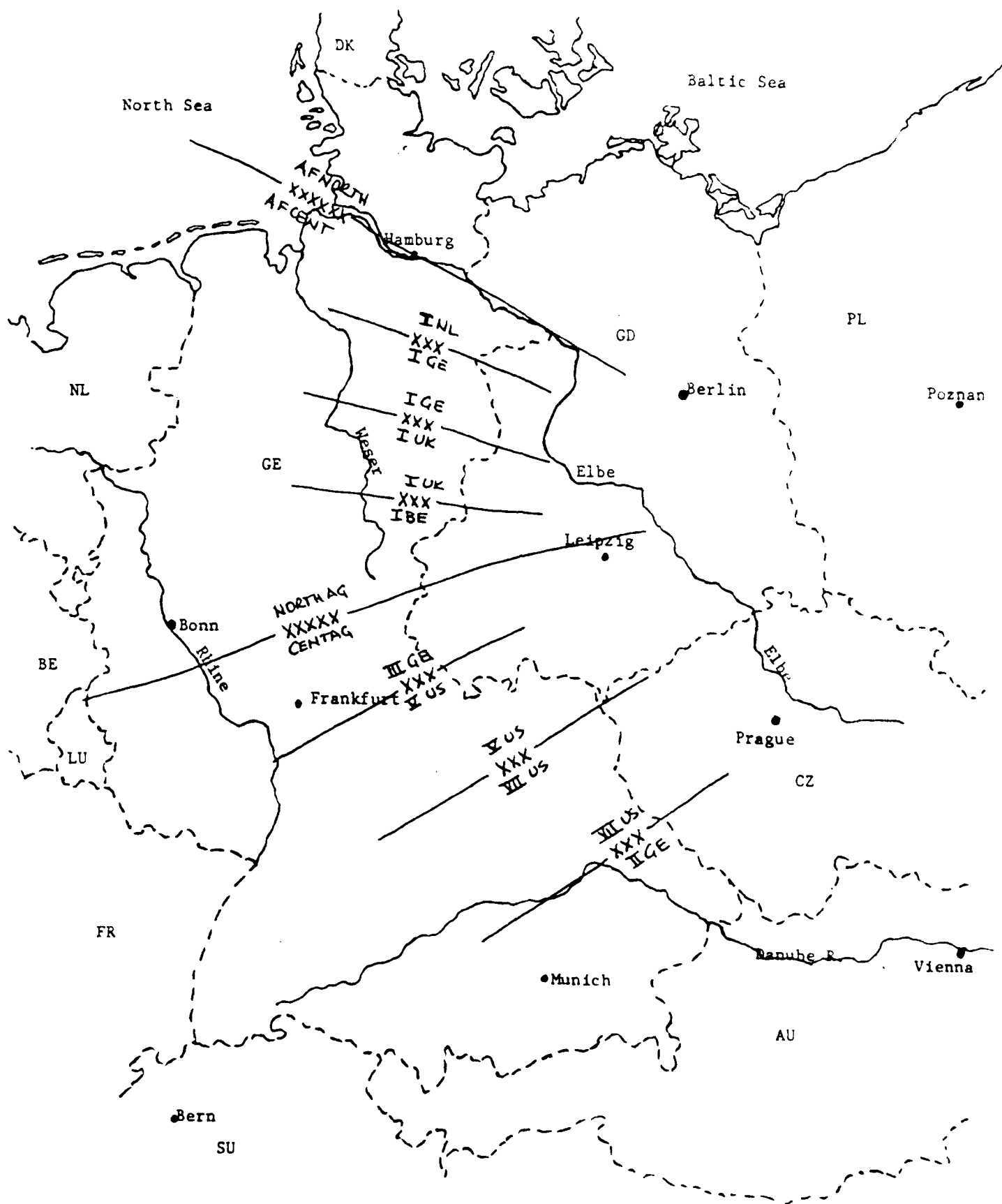
COMCENTAG

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Annexes:



E-33

MAP A: AFCNT BOUNDARIES
SCALE: 1:4000000

ORDER OF BATTLE
FOR THE
WAR IN POLAND

NORTHWESTERN FRONT

Pomeranian Army (Poland)
Silesian Army (Poland)
Warsaw Army (Poland)
11th Tactical Air Army
2nd Airborne Division (Soviet)
37th Artillery Division

WEST-CENTRAL FRONT

2nd Guards Tank Army
German Military District Two
incl Northern Group of Divisions (Soviet)
20th Guards Army
1st Guards Tank Army
8th Guards Army incl German Military
District Three
3rd Shock Army
16th Tactical Air Army
1st Airborne Division (Soviet)
3rd Airborne Division (Soviet)
4th Airborne Division (Soviet)
10th Artillery Division

SOUTHWESTERN FRONT

Central Group of Forces (Soviet)
1st Czechoslovakian Army
4th Czechoslovakian Army
17th Tactical Air Army
5th Airborne Division (Soviet)
16th Artillery Division

<u>UNIT NUMBER</u>	<u>NAME OF ORGANIZATION</u>	<u>SHORT TITLE</u>	<u>HEX LOCATION</u>	<u>DATE AVAILABLE</u>
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NORTHWESTERN FRONT

WARSAW ARMY (PL)

103	16th Armored Division	16ADP	BM077	
104	1st Motorized Rifle Division	1MDP	BM078	
105	2nd Motorized Rifle Division	2MDP	BM079	

SILESIA ARMY (PL)

106	1st Armored Division	1ADP	BM088	
107	12th Armored Division	12ADP	BM089	
108	4th Motorized Rifle Division	4MDP	BM086	
109	15th Motorized Rifle Division	15MDP	BM082	
160	14th Armored Division	14ADP	BM087	

<u>UNIT NUMBER</u>	<u>NAME OF ORGANIZATION</u>	<u>UNIT NUMBER</u>	<u>AREA LOCATION</u>	<u>DATE AVAILABLE</u>
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POMERANIAN ARMY (PL)

161	20th Armored Division	20ADP	BI095	P
162	11th Armored Division	11ADP	BF096	P
163	12th Motorized Rifle Division	12MR	BI096	P
164	3rd Motorized Rifle Division	3MR	BI096	P
165	8th Motorized Rifle Division	8MRP	BC097	P

WEST-CENTRAL FRONT

2nd GUARDS TANK ARMY

121	9th Tank Division (GD)	9TD	SH070	P
122	16th Guards Tank Division	16GTD	BD088	P
123	21st Motorized Rifle Division	21MDR	BC085	P
124	25th Tank Division	25TD	BD083	P
125	94th Guards Motorized Rifle Division	94GMR	AZ088	P

GERMAN MILITARY DISTRICT FIVE
NORTHERN GROUP OF FORCES (SOVIET)

131	8th Motorized Rifle Division (GD)	8MRGD	AZ064	P
139	4th Motorized Rifle Division (GD)	4MRGD	BF065	P
140	7th Tank Division (GD)	7TDGP	BB062	P
145	20th Tank Division (NGF)	20TDN	BA067	P
146	38th Tank Division (NGF)	38TDN	BF068	P

20th GUARDS ARMY

130	6th Guards Motorized Rifle Division	6GM20	AY059	P
131	14th Guards Motorized Rifle Division	14GM20	BD060	P
132	25th Guards Motorized Rifle Division	25GM20	AW055	P

1st GUARDS TANK ARMY

141	7th Guards Tank Division	7GTD1	BC051	P
142	9th Tank Division	9TD1	BH056	P
143	11th Guards Tank Division	11GT1	AZ052	P
144	27th Guards Motorized Rifle Division	27GMR	AX050	P

8th GUARDS ARMY (Incl GD Mil Dist 111)

133	79th Guards Tank Division	79GT8	BJ050	P
134	20th Guards Motorized Rifle Division	20GM8	BE051	P
135	39th Guards Motorized Rifle Division	39GM8	BF048	P
136	57th Guards Motorized Rifle Division	57GM8	BC051	P
137	1st Motorized Rifle Division (GD)	1MDGD	BJ054	P
138	11th Motorized Rifle Division (GD)	11MDGD	BC045	P

3rd SHOCK ARMY

126	10th Guards Tank Division	10GT3	BJ064	P
127	12th Guards Tank Division	12GT3	BL062	P
128	47th Guards Tank Division	47GT3	BC059	P
129	207th Guards Motorized Rifle Division	207GM3	BJ060	P

UNIT NUMBER	NAME OF ORGANIZATION	SYMBOL TITLE	FILE LOCATION	DATE AVAILABLE
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SOUTHWESTERN FRONT

1st CZECHOSLOVAKIAN ARMY CENTRAL GROUP OF FORCES (SOVIET)

149	2nd Motorized Rifle Division (CZ)	2MDR	B0041	
150	19th Motorized Rifle Division (CZ)	19MDR	B1045	
151	18th Guards Motorized Rifle Division (CGF)	18GMR	B0042	
152	32nd Tank Division (CGF)	32TD	B1048	
166	5th Tank Division (CGF)	5TD	B0051	
167	20th Motorized Rifle Division (CGF)	20MDR	B0052	
168	21st Motorized Rifle Division (CGF)	21MDR	B0044	
171	47th Motorized Rifle Division (CGF)	47MDR	B0053	
172	31st Tank Division (CGF)	31TD	B0041	

4th CZECHOSLOVAKIAN ARMY CENTRAL GROUP OF FORCES (SOVIET)

147	1st Tank Division (CZ)	1TD	B1035	
148	4th Tank Division (CZ)	4TD	B0031	
169	22nd Motorized Rifle Division (CGF)	22MDR	B0041	
170	48th Guards Motorized Rifle Division (CGF)	48GMR	B0029	

SOVIET ROCKET ARTILLERY

199	1st UR Scud Brigade	1SRB	B0090	
200	2nd UR Scud Brigade	2SRB	B0080	
201	3rd UR Scud Brigade	3SRB	B1078	
202	4th UR Scud Brigade	4SRB	B0054	
203	5th UR Scud Brigade	5SRB	B0062	
204	6th UR Scud Brigade	6SRB	B0041	
205	1st UR Scaleboard Brigade	1SRB	B0075	
206	2nd UR Scaleboard Brigade	2SRB	B0065	
207	3rd UR Scaleboard Brigade	3SRB	B0041	

SOVIET AIRBORNE FORCES

210	1st UR Airborne Division	1ABD	B0070	
211	2nd UR Airborne Division	2ABD	B0070	
212	3rd UR Airborne Division	3ABD	B0060	
213	4th UR Airborne Division	4ABD	B0043	
214	5th UR Airborne Division	5ABD	B0043	

WARSAW LOGISTICAL UNITS

215	Northwestern Front Depot	1FDP	B0085	
216	West-Central Front Depot	2FDP	BK067	
217	Southwestern Front Depot	3FDP	B0049	
218	Warsaw Pact Army Depot	1FDP	B0089	
219	Warsaw Pact Army Depot	2FDP	B0061	B042
220	Soviet Forces Depot	3FDP	B0069	
221	Soviet Forces Depot	4FDP	B0041	B043

WARSAW PACT/SOVIET AIR FORCES

<u>UNIT</u> <u>NUMBER</u>	<u>TYPE AIRCRAFT (NUMBER)</u>	<u>AREA</u>	<u>SHORT</u> <u>TITLE</u>	<u>FILE</u> <u>LOCATION</u>	<u>DAY</u> <u>AVAILABLE</u>
230	SU7A 65	2	15072	BM093	D
231	SU7A 70	4	25074	BM065	D
232	SU17A 135	2	38172	BN080	D
233	SU17A 35	4	48174	BM043	D
234	M21 90	2	5M211	BH094	D
235	M21 130	4	6M214	BK057	D
236	M23 125	2	7M232	BM061	D
237	M23 70	4	8M234	B0041	D
238	M17 80	4	9M174	BM045	D
239	M27 100	2	10M272	BF084	D
240	M27 35	4	11M274	BF058	D
241	Yak 28 25	4	12Y284	BK041	D
242	T16 70	2	13T162	BK097	D
243	T16 70	4	14T164	BL053	D
244	T22 40	2	15T222	BJ080	D
245	T22 45	4	16T224	EN036	D
246	CUB 80	2	17CUB2	BF098	D
247	CUB 30	4	18CUB4	B0043	D

NOTE: These aircraft represent only those aircraft which will be providing CAS type of support. All other aircraft are handled by the TWX model.

ORDER OF BATTLE
FOR
CARMAX 83

<u>UNIT NUMBER</u>	<u>NAME OF ORGANIZATION</u>	<u>SHORT TITLE</u>	<u>HLA LOCATION</u>	<u>AVAIL AVAILABLE</u>
NATO				
AFNORTH				
1	Danish Jutland Division	1DKD	AQ107	D
2	GE Home Defense Group 13	13HDC	AW097	D
3	6th GE Armored Infantry Division	6MDCT	AT098	D
AFCENT				
NORTHAG				
1 (NL) CORPS				
4	1st Mechanized Division	1MDNL	AS083	D
5	4th Mechanized Division	4MDNL	AC083	D
6	5th Mechanized Division	5MDNL	AA077	D+2
7	3rd GE Armored Division	3ADGE	AT086	D
8	2nd US Armored Division	2ADUS	AL088	D
I (GE) CORPS				
9	1st Armored Division	1ADGE	AS075	D
10	7th Armored Division	7ADGE	AM075	D
11	11th Armored Division	11ADGE	AP070	D
I (UK) CORPS				
12	1st Armored Division	1ADUK	AR068	D
13	2nd Armored Division	2ADUK	AL070	D
14	3rd Armored Division	3ADUK	AJ068	D
15	4th Armored Division	4ADUK	AL088	D+2
16	5th Field Force	5FFUK	AL066	D
17	7th Field Force	7FFUK	AL088	D+3
I (BE) CORPS				
18	16th Mechanized Division	16MDBE	AM049	D
19	1st Mechanized Division	1MDBE	AA051	D+2
20	10th Mechanized Division	10MDBE	AA051	D+4
CENTAG				
III (GE) CORPS				
21	2nd Armored Infantry Division	2MDGI	AM043	D
22	5th Armored Infantry Division	5MDGI	AM039	D

<u>UNIT NUMBER</u>	<u>NAME OF ORGANIZATION</u>	<u>UNIT TYPE</u>	<u>HEX LOCATION</u>	<u>DAY AVAILABLE</u>
V (US) CORPS				
23	3rd Armored Division	3ADUS	AG037	D
24	8th Mechanized division	8MDUS	AG029	D
25	11th Armored Cavalry Regiment	11ACR	BB036	D
VII (US) CORPS				
26	3rd Mechanized Division	3MDUS	AW029	D
27	1st Mechanized Division	1MDUS	AX022	D
28	1st Armored Division	1ADUS	AV022	D
29	2nd Armored Cavalry Regiment	2ACR	BB024	D
30	12th GE Armored Division	12ADGN	AW017	D
II (GE) CORPS				
31	10th Armored Division	10ADGE	BA015	D
32	4th Armored Infantry Division	4MDGE	BF016	D
33	1st Mountain Division	1MTDGE	BH010	D
34	4th Canadian Mechanized Brigade Group	4CMBG	AI015	D
FRENCH FORCES				
35	1st Armored Division	1ADFR	AB034	D
36	3rd Armored Division	3ADFR	AH010	D
37	5th Armored Division	5ADFR	AH026	D
38	4th Armored Division	4ADFR	AA019	D+1
39	6th Armored Division	6ADFR	AH020	D+1
40	7th Armored Division	7ADFR	AB004	D+1
41	8th Armored Division	8ADFR	AA025	D+2
42	10th Armored Division	10ADFR	AA027	D+2
GE TERRITORIAL FORCES				
43	Home Defense Group 14	14HDG	AG075	D
44	Home Defense Group 15	15HDG	AT038	D
45	Home Defense Group 16	16HDG	AF032	D
46	Home Defense Group 17	17HDG	AN020	D
47	Home Defense Group 18	18HDG	BB008	D
US RESERVES				
48	101st Airborne Division	101ABD	AL088	D+2
49	3rd Armored Cavalry Regiment	3ACR	AL088	D+4
50	9th Infantry Division	9IDUS	AI088	D+6
51	4th Mechanized Division	4MDUS	AA065	D+5
BERLIN BRIGADES				
52	US Berlin Brigade	USBLB	BI073	D
53	FR Berlin Brigade	FRBLB	BI073	D
54	GE Berlin Brigade	GEBLB	BI075	D
55	UK Berlin Brigade	UKBLB	BI075	D

<u>UNIT NUMBER</u>	<u>NAME OF ORGANIZATION</u>	<u>SHORT TITLE</u>	<u>HEX LOCATION</u>	<u>DAY AVAILABLE</u>
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AIRBORNE DIVISIONS

61	1st French Airborne Division	1ABFR	AF004	
62	1st German Airborne Division	1ABGE	AJ038	D

LANCE/PERSHING BATTALIONS

63	1st GE Pershing Battalion	1PBGE	AG071	D
64	1st US Pershing Battalion	1PBUS	AD050	D
65	3rd US Pershing Battalion	3PBUS	AK021	D
66	1st GE Lance Battalion	1LBGE	AQ085	D
67	3rd GE Lance Battalion	3LBGE	AM037	D
68	1st UK Lance Battalion	1LBUK	AM067	D
69	2nd GE Lance Battalion	2LBGE	AY017	D
70	1st US Lance Battalion	1LBUS	AM029	D
71	2nd US Lance Battalion	2LBUS	AZ022	D
72	1st BE Lance Battalion	1LBBF	AJ060	D
73	1st FR Lance Battalion	1LBFR	AG017	D

LOGISTICAL SUPPORT UNITS

103	1st NL Corps Support Command	1CCNL	AC085	D
104	2nd GE Corps Support Command	2CCGE	AP080	D
105	3rd UK Corps Support Command	3CCUK	AJ072	D
106	4th BE Corps Support Command	4CCBE	AA057	D+1
107	6th GE Corps Support Command	6CCGE	AK037	D
108	5th US Corps Support Command	5CCUS	AR032	D
109	7th US Corps Support Command	7CCUS	AQ021	D
110	8th GE Corps Support Command	8CCGE	BB012	D
111	1st Northern Army Group Support Command	1TCN	AE075	D
112	2nd Central Army Group Support Command	2TCC	AJ033	D
113	3rd French Army Support Command	3TCF	AF026	D+2
114	9th FR Corps Support Command	9CCFR	AC019	D+1

NATO AIRFORCES

CAS AIRCRAFT ONLY

<u>UNIT NUMBER</u>	<u>TYPE AIRCRAFT (NUMBER)</u>	<u>ATAF</u>	<u>SHORT TITLE</u>	<u>HEX LOCATION</u>	<u>DAY AVAILABLE</u>
75	A10 102	4	1A104	AE039	D
76	F4A 40	2	2F42	AF096	D
77	F4A 100	4	3F44	AA035	D
78	F16 76	2	4F162	AF028	D
79	F16 69	4	5F164	AC071	D
80	F104 36	2	6F042	AD058	D
81	F104 171	4	7F044	AG009	D
82	F111 70	2	8F1112	AA107	D
83	F111 85	4	9F1114	AA039	D
84	TOR 12	2	10TR2	AJ080	D
85	Alpha 42	2	11AL2	AM081	D
86	Alpha 62	4	12AL4	AY029	D

<u>UNIT NUMBER</u>	<u>TYPE AIRCRAFT (NUMBER)</u>	<u>ATAF</u>	<u>GROUP TITLE</u>	<u>AEX LOCATION</u>	<u>DAY AVAILABLE</u>
87	Mirage 80	2	13MR1	A1060	D
88	F5A 80	2	14F52	AL061	D
89	AV8A 24	2	15AV2	AQ073	D
90	Buc 12	2	16BC2	AH060	D
91	Jag 46	2	17JG2	AK075	D
92	Cl30 48	4	1C130	AN038	D
93	Cl60 32	2	2C162	AG069	D
94	Cl60 16	4	3C164	AU031	D

NOTE: All other aircraft resources are maintained in the TWX database because they are used solely by the TWX model in the conduct of CARMAX war gaming play.

CARMAX Msg USAWC 1

FM: CINCENT

TO: COMAAFCCE

DTG: 161300 Mar 83

SUBJ: Interdiction/Reconnaissance Targets

I. Units as indicated in the MTM data base. The target numbers are 120 thru 222.

II. Fixed installation targets are as follows:

TWX Tgt Number/Description/Hex location	TWX Tgt Number/Description/Hex location
230 Highway/RJ BJ054	231 Highway/RJ BF065/BF066
232 Bridge BE065	233 Autobahn BE065
234 Highway AA083	235 Highway AL082
236 Bridge AF084	237 Bridge AG083
238 Highway AK081	239 Highway AL070
240 Highway AK069	241 Bridge AF072
242 Road AI085	243 Road AH084
244 HighwayRJ AJ084	245 HighwayRJ AL060
246 Highway AJ078	247 Highway AJ072
248 Road AD070	249 Bridge AG067
250 Bridge AH068	251 Highway AH064
252 Highway AH064	253 HighwayRJ AH060
254 HighwayRJ AL060	255 Road RJ AL052
256 HighwayRJ AI051	257 HighwayRJ AH052
258 Bridge AG043	259 Bridge AL032
260 Bridge AK037	261 Bridge AJ038
262 Bridge AK033	263 HighwayRJ AT068
264 Highway AL024	265 Highway AL046
266 Highway AT072	267 Bridge AV092
268 Highway AS071	269 Highway AT070
270 Highway AU071	271 Highway AV072
272 Highway AW071	273 Highway AX070
274 Road AX090	275 Bridge AV088
276 Road AW091	277 Road AK093
278 Highway AV088	279 Bridge AT088
280 Highway AV070	281 Road AX060
282 Road AW059	283 Road AV060
284 Highway AT064	285 Highway AS073
286 Highway AS071	287 Road AS065
288 Bridge AQ065	289 Road AX060
290 Highway AX052	291 Road AU051
292 Bridge AU051	293 Road AU049
294 Road AV048	295 Highway AW051
296 Bridge AT052	297 Highway AQ049
298 Bridge AQ037	299 Bridge AT036
300 HighwayRJ BB070	301 Bridge AX038
302 Road AX036	303 Highway AS035
304 Highway AX034	305 Road AW033

III. Any of the above targets can be requested for BAI, AI, and Reconnaissance missions. Priorities will be assigned at the time the missions are requested.

CARMAX Msg USAWC 2
 FM: Warsaw Pact TVD Commander
 TO: WP TVD Air Commander
 DTG: 16 1400 Mar 83
 SUBJ: Interdiction/Reconnaissance Targets

I. Blue Units indicated in the MTM Data base will be prime targets for Warsaw Pact victorious air forces. The target numbers will be 101 thru 244 inclusive. (Note: 100 has been added to the unit ID number in the MTM data base.)

II. Fixed installation targets are as follows:

TWX Tgt Number/Description/Hex location	TWX Tgt Number/Description/Hex location
230 Highway AW097	231 Highway AW098
232 Highway AW095	233 Highway AW099
234 Highway AW093	235 Highway AW100
236 Bridge AW091	237 Bridge BA069
238 Bridge AH068	239 Bridge AB056
240 Bridge AD052	241 Bridge AF044
242 Bridge AJ038	243 Bridge AG037
244 Bridge AH018	245 Bridge AT100
246 Bridge AR100	247 Bridge AT088
248 Bridge AN082	249 Bridge AN080
250 Bridge AN070	251 Bridge AP055
252 Bridge AQ057	253 Bridge AN040
254 Bridge AL040	255 Bridge AD039
256 Bridge AN038	257 Bridge AK039
258 Bridge AK037	259 Bridge AQ037
260 Bridge AT036	261 Bridge AS035
262 Bridge AK033	263 Bridge AS017
264 Bridge BD088	265 Bridge AP035
266 Bridge BA023	267 Bridge BA021
268 Bridge AW021	269 Bridge AX016
270 Bridge AY017	271 Bridge AD084
272 Highway AB084	273 Highway AB084
274 Highway AJ088	275 Highway AD082
276 Highway KJ AB078	277 Highway AJ078
278 Highway AA071	279 Highway AC071
280 Highway AE071	281 Highway AB070
282 Highway RJ AI071	283 Highway AG067
284 Highway AA065	285 Highway AG065
286 Highway AI063	287 Highway AB062
288 Highway AB060	289 Highway AB060
290 Highway AJ060	291 Highway AB056

III. Any of the above targets can be requested for BAI, AI, and Reconnaissance missions. The target will be assigned at the time the mission is requested.

CARMAX msg USAWC 3

EXERCISE EXERCISE EXERCISE

FM: Warsaw Pact TVD Commander

TO: All Front Commanders

DTG: 250800 mar 83 (D-5)

SUBJECT: March to Victory

1. ALL COMMANDERS ARE DIRECTED TO MOVE THEIR FORCES TO THEIR INITIAL POSITIONS ALONG THE ICB REPEAT ICB IN PREPARATION FOR FUTURE "MILITARY EXERCISES".
2. RADIO SILENCE AND MARCH DISCIPLINE MUST BE MAINTAINED AT ALL COST. WE MUST NOT ALERT THE NATO FORCES AS TO OUR INTENTIONS.
3. ALL ACTIONS MUST BE DIRECTED TOWARD DEFENSE OF THE MOTHERLAND FROM THE IMPERIAL COLONIALIST OF THE WESTERN WORLD.
4. POSITIONS MUST BE OCCUPIED FOR A PERIOD OF NOT LESS THAN 24 HOURS AFTER ARRIVAL.

EXERCISE EXERCISE EXERCISE

CARMAX msg USAWC 4

EXERCISE EXERCISE EXERCISE
DTG: 281500 mar 83 (D-5)
FM: CINCENT

TO: COMNORTHAG
COMCENTAG ✓
COMAAFCF
COMTWOATAF
COMFOURATAF

INFO: SACEUR
NAMILCOM

U N C L A S S I F I E D

SIC AAA/BBB

SUBJECT: Increasing Tension in Central Region

REFERENCE: a. OP PLAN 83
 b. Special Intelligence Reports

1. Latest Intelligence reports have confirmed that Warsaw Pact/Soviet Forces have begun a major movement toward the ICB in all sectors facing Central Region. Initial indications are that Polish forces are concentrating in the northern sector of GB while the greatest concentration of Warsaw Pact/Soviet forces are locating in the Central Sector (Berlin to the Czech Border). The Czech Army together with some Soviet Forces are moving to the GE-CZ border area. These movements are in direct violation of agreed notification procedures.
2. Red Air Forces are also increasing activity at a very rapid pace. Intelligence sources reveal that munitions normally well guarded are now being moved toward airfields associated with the aircraft/missions expected in an attack on the Central Region. No border over flights have occurred but air activity is increasing along the entire border area.
3. Reports received from the Northern Region and the Southern Region confirm that similar activity is underway from Soviet Forces in their respective areas. Although general alert has not been designated, ALL COMMANDERS should take immediate steps to prepare units for any possibility.
4. Violation of Austrian neutrality is not indicated nor is it deemed likely at this time.

BT

EXERCISE EXERCISE EXERCISE

CARMAX msg USAWC 5

EXERCISE EXERCISE EXERCISE
DTG: 281530 Mar 83 (D-5)
FM: CINCENT

TO: COMNORTHAG ✓

INFO: SACEUR
COMCENTAG
COMAAFCF
COMTWOATAF
COMFOURATAF
NAMILCOM

U N C L A S S I F I E D

SIC AAA/BBB

SUBJECT: Increased FORCE Deployments

REFERENCE: OP PLAN 83

1. New information received indicates that Belgian and Dutch authorities have given the green light to the full call-up of the 5MDNL, 1MDBE, and 10MDBE. Plans may be made for use of these units in their respective corps on D+1, D+1, and D+2.
2. In addition, the 4ADUK and the 7FFUK will be available for reinforcement on D+1.
3. US Reserves will form the 3rd US Corps and will be available for deployment in the NORTHAG Sector under OPCON of COMNORTHAG on D+3.

BT

EXERCISE EXERCISE EXERCISE

(D-4)

CARMAX msg USAWC 6

EXERCISE EXERCISE EXERCISE
DTG: 291000 Mar 83
FM: CINCENT

TO: COMNORTHAG
COMCENTAG

INFO: COMAFFCE
COM TWO ATAF
COM FOUR ATAF
SACEUR
NAMILCOM

UNCLASSIFIED

SIC AAA/BBB

SUBJECT: SITUATION UPDATE

1. Intelligence reports indicated that the WP forces have moved closer to the border. All indications point to a major attack in the NORTHAG area south of HAMBURG. A secondary attack will be directed toward FULDA. Simultaneous attacks will likely occur across the entire front.

2. Commanders all levels should take action to improve their defensive positions. SACEUR has assured me that each nation will increase their units strengths in their GDP by 5% ASAP. (Effective upon receipt of this message).

3. I cannot tell you the urgency of the situation NATO faces. All allied foreign ministries are working diligently to maintain the peace. For the sake of mankind, let us hope they succeed.

BT

EXERCISE EXERCISE EXERCISE

E-47

CARMAX msg USAWC 7

EXERCISE EXERCISE EXERCISE

DTG: 291500Z Mar 83

FM: WP TVD COMMANDER

TO: ALL F COMMANDERS

SUBJECT: MARCH TO VICTORY

REF: CARMAX msg USAWC 3

1. Reports reaching this HQ indicate that all units are now located in their positions ready to launch the "March to Victory."
2. However, we must not let our vigilance waiver. We must be alert to attack from the Capitalist NATO forces and be prepared to destroy them.
3. All commanders will receive replacements for their units which will increase their strength by 5%. This action will be effective upon receipt of this message.

BT

EXERCISE EXERCISE EXERCISE

ANNEX F: OBSERVATIONS/COMMENTS

CARMAX GAME OBSERVATIONS

1. OBSERVATION: The effect of BAI on ground forces is not being properly played in the war game.

COMMENT: The results of the BAI which had been flown by the Air Force is calculated by hand at the Army War College by the controllers the first thing in the morning. The controllers then go into the model and get the unit strength in the DIR mode as of 0600 game time (when the game was stopped after the play of yesterday). The way we have been playing the changes in unit strength is by modifying the units strength prior to the start of the new day's play. The correct way to adjust the unit strength is to let the unit play at its existing strength at the start of the day and based on the Air Force BAI report time for each unit, go into the Director mode and get the strength of the desired unit at the exact time that it was hit by BAI. Using the existing strength and the BAI results, the units strength could then be modified correctly based on the combat action. The reason for going through all of these steps is to allow the unit to play at its proper strength through the day until the BAI strike. If the play is not done this way, the unit could be penalized as it went into battle because the controllers had made an early strength adjustment, and the unit entered battle with less strength than it should have.

2. OBSERVATION: BAI Targets.

COMMENT: A BAI target list was provided to the USAF (Maxwell) via Silent 700 on the day prior to the actual strike. At this juncture in the battle, approximately 6-8 hours of playing time remain. During the remaining time, most of the units identified for BAI strikes will have moved 3-4 hexes or

possibly more. No diversion of the BAI strikes can be made during this time frame which results in many sorties being totally lost or at best ineffective. Procedural changes are required to remedy this shortcoming.

3. OBSERVATION: Percentage of kills are disproportionately high.

COMMENT: It had been assumed that the war game model for an air play achieved large kill percentages on appropriate units. However, during actual game play only a few large kill percentages were noted. This is considered to be both unrealistic and inefficient as the relationship between effort and percentage of kill is not linear in nature. Further, the percent of a unit killed would not likewise be linear. This apparent shortcoming should be rectified for future joint war game play.

4. OBSERVATION: The play of BAI is complicated by the fact that the sorties can be used to either damage or destroy enemy units or to slow them down (interdict them). In discussions with Maxwell it was revealed that we do not have a method of integrating the need to slow a unit and the number of aircraft required to do this. TWX has a capability to determine the number of aircraft required to slow a unit a certain amount of time. The MTM apparently does not slow units in proportion to the damage they have received. In order for the players to be able to consider the tradeoffs between attempting to wear a unit down (damage) and slow it down (delay) an assessment of sorties for slowing down the unit must be made.

COMMENT: We need a value that is acceptable to both Maxwell and ourselves for slowing down units. Without this the game is distorted in terms of how to apply BAI, and in fact, AI.

5. OBSERVATION: For the BAI and RECCE requests, the players do not have the unit ID numbers associated with their requests.

COMMENT: A possible solution to this problem is to have the team leaders

deliver their requests to the controllers with the unit ID column blank. The controllers can then look at the opposing team board to determine if the requested hex contains an enemy unit. If a unit is present, the controller enters the ID in the appropriate column on the air request message. If the controller finds no unit in the requested BAI or RECCE position then the controller will delete the item from the request that goes to the Air War College. Revised air allocation is still a problem that needs to be addressed.

6. OBSERVATION: BAI and RECCE operations. Both BAI and RECCE requests are unrealistically played.

COMMENT: A format is needed to expedite and simplify the procedure to realistically play BAI and RECCE operations. Controllers must develop a priority listing of player submitted BAI and RECCE requests. A solution is to have team leaders submit requests to controllers with unit ID blank. If unit is in the hex, controller enters ID in the appropriate column on the air request message. No unit in the hex requested by BAI and RECCE allows the controller to delete that request prior to dispatch to the Air War College. Requested air allocation might be solved by using prioritized request lists or allowing the model/controller a one or two hex deviation along route of flight.

FORMAT MIGHT BE AS FOLLOWS:

BAI MISSION	TIME OF EVENT	UNIT ID	STRENGTH
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RECCE REQUEST	TIME OF FLIGHT	UNIT ID	LOCATION
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7. OBSERVATION: Software limitations required controllers to develop subject-

tive methods of answering RECCE requests especially requests for oblique coverage of border areas and requests that would be satisfied by SOTAS/SLAR.

COMMENT: For the requests for oblique coverage of border areas, we limited the collection possibilities to within one hex of the border. Then, to approximate 70 percent intel reliability, we only reported on 7 out of 10 hexes, using a predetermined sequence for which hexes not to report on.

8. OBSERVATION: RECCE play got off to a slow start, and then improved--the negative aspect of RECCE and indeed other sources such as combat reporting was unrealistic (we should have had armed RECCE reports, BAI pilot debriefs, etc.). The manual system developed with the controllers worked well and probably could be refined to work even better next time.

COMMENT: After Day-two BLUE had a good system for RECCE, and targeting interface. However, missile targets were too accurate on both sides. These are hard to locate units, and the probability for detection ought to be set lower in the 25-35% range. After initial detection, subsequent information might be at in the 50% probability range.

9. OBSERVATION: Results of RECCE flights were provided each morning by Maxwell via the Silent 700. Their report provided units overflown at least twice--units were identified only by unit number. The results of the flights were invaluable to the Blue side, but the controller time and effort required to translate the Maxwell report into a form that was useful to the Blue side was unreasonable.

COMMENT: A better way to interface the Maxwell report is required. In any solution, the timely feedback of RECCE data is essential.

10. OBSERVATION: Weather impact on operations.

COMMENT: Weather needs to be considered when RECCE missions are flown at both Maxwell and AWC. Fair to poor weather should give results as compared to RECCE

missions flown in good weather. This should hold true for both sides throughout the battle.

11. OBSERVATION: With the air assets at zero from the previous day's play and waiting to enter the new day's allocation, the controllers found that they could not get the level of aircraft assigned to the various unit that they attempted to accomplish. The team Sitrep that we decided to bring out to insure that all of the team members knew what had happened over the night when that air problems were identified, proved the point that is stated in this observation (on Blue) and the printout did not show the number of aircraft assigned as was entered into the program by the controller and showed up on the printed response.

COMMENT: Changing the number of units that the various air units started out with could be attempted. It appears that as the game goes along the air unit strengths increase by replacements or by some other means. The number of aircraft that become available from the Air War College in some cases have exceeded the amounts that were originally allocated. If this is the case, then we must keep the number of aircraft available at least to the level that the Air War College gives the Red and Blue units.

12. OBSERVATION: At the end of each day's play, the controllers must put the program play to 0 to 1. Then we found that the air assets cannot be reprogrammed as planned by just cancelling assignments of the various air assets. The game play as we thought it would happen was to cancel the assignments, wait for the new number of aircraft availabilities from the Air War College, and then go in the Director mode and assign the new aircraft the first thing in the morning. We found that this process allowed both sides to have two times the number of air assets assigned or avail from the Air War College.

COMMENT: To solve this problem, the controllers (Red and Blue) must go through the last Sitrep and take all of the units with assigned assets and using the normal mode for support and enter the ground unit, the air unit and make support level 0. In order to get the next day's play underway, the controllers will need to go back into the normal support mode and enter units, and the new aircraft assignments and the new level of support. The determination of the new level of support is a combination of the Blue and Red teams planning numbers for air support and the actual level of support that the Air War College finally sent to the control team at Carlisle at the end of the air daily play.

13. OBSERVATION: The Air War College passes air missions that don't match units that are actually flown. Type of aircraft flown and unit ID on allocated missions from Maxwell differs greatly and does not allow the controllers to realistically portray what actually flew.

COMMENT: Further analysis and discussion with the air players revealed that the choice of planes to fly the missions is of little real interest to the maneuver commander and his staff. The sorties planned by aircraft type and those actually flown are not always the same. It is the aircraft actually flown that should only be played in the assignment process for CAS.

14. OBSERVATION: The constrained level of prehostility intelligence restricted the development of the game.

COMMENT: To facilitate the play of the airland battle concept the extent of pre-hostility intelligence from Soviet national and theater intelligence collection systems must be facilitated. The aggressive reporting of the pre-hostility period must be continued as units identified in initial deployments would be located in zone. As units are located their designations would be developed as in a real world setting which was not done in the play of the

game. Without proper intelligence there appeared to be a narrowing of focus of the game and tendency to maneuver Red units at a lower echelon than Western TVD Fronts. The pre-hostility phase of the game should jointly be developed by the two schools and all players should be briefed as to the development of conflict.

15. OBSERVATION: Pre-hostility Intel Play Red.

COMMENT: The intelligence information available prior to the start of hostilities was constrained. The expectation that aggressive use of Soviet national and theater intelligence collection systems would be targeted in an adequate lead time, if not continuously, to provide timely information is anticipated. The majority of enemy units in zone would be located and movements anticipated. Further, all units whose initial deployments were located would be identified by unit designation or identified early on. In fact this was not the case. The constrained level of pre-hostility intelligence play allowed many units to remain unidentified until well into the attack phase. Also, several units actually engaged were never identified by unit designation. The immediate outcome of the restricted level of pre-hostility intelligence information was the tendency of the Red players to narrow their focus of operations apparently to operate upon existing information. With this narrowing of scope, players also appeared to move down in echelons departing from the original intent and scope of the study. Thus, the constrained flow of intelligence impeded development of the Red play of the problem.

16. OBSERVATION: Intelligence preparation of the battlefield (terrain analysis and target lists) was inadequate. The gross nature of this game severely impacted on the measures which BLUE would have used to exploit the intelligence preparation of the battlefield. Prior to the pre-hostilities

phase BLUE identified critical countermobility targets for BAI (indeed Dan Dixon procured a classified target study done for the Air Force by DMA and it is in the classified library for possible sanitization and use in future iterations).

COMMENT: BLUE was generally disappointed in the use of terrain information. The MTM has limitations in what can be inserted within the hexes (in terms of capacity). Worse when we dealt with Maxwell, the impression received was that fixed targets were not a priority for the Air Force and required extensive sorties. After Day-one we simply did not use fixed targets and that was a disappointment, particularly vis-a-vis the OMG which we wanted to delay. This aspect of the MTM must be upgraded in conjunction with Maxwell. A better understanding of countermobility issues as a whole (mines is an example) would appear to be in order. A joint Air Force/Army fixed target list is used in the theater now (it does not have to be extensive) in an airland battle context--this ought to be in the MTM. One related comment, some units (both RED and BLUE simply moved over areas which could not accommodate units of their respective capacities for terrain--the Hof approach is an example where substantial forces ended up being concentrated in a relatively restricted region).

17. OBSERVATION: Targeting vs intelligence activities.

COMMENT: The present CARMAX exercise handles targeting and intelligence operations as two distinctly different activities. The near real time aspects of the airland battle concept requires collation/merging of these two activities. Recommend consideration be given to merging targeting and intelligence activities.

18. OBSERVATION: OMG Targeting.

COMMENT: With the inability to target second echelon or deep area targets, BAI

air strikes against OMG units became the primary thrust of Blue air support activities. Recommend inclusion of deep area strike capability.

19. OBSERVATION: Control of Intel by Hex-Red.

COMMENT: Given the structure of the game, which organizes the terrain by hexes, a paradox becomes evident. When intelligence and terrain are joined and information is requested by hex one player described the information as "too perfect and too much." Thus, the information was unrealistic for the usual real world observation from the field is that the intelligence available was "too little too late." On the other hand, during the play of the game it was decided to limit the Red intelligence requests to six hexes, per front, per day. This reduction did not give credit for the normal twenty-four hour electronic warfare surveillance agents in zone, special reconnaissance teams, radio direction finding units that provide direct surveillance of air, Lance, and Pershing units, and all major headquarters. The problem is how to provide a balance to provide realistic levels of information available to Red units in Zone without dumping the entire data base.

20. OBSERVATION: The requesting of intelligence by hex was too detailed in depth and too narrow in scope.

COMMENT: When information was requested by hex all the information available was provided. Thus, the intelligence provided was not realistic for this is not reflected in reality. On the other hand, the Red units were limited to six hexes, per front, per day, again not reflecting reality as the limiting of a Fronts total intelligence gathering effort to less than 200 kilometers is highly constrained. Further, requests for intelligence which did not conform to the schedule of the computer were developed through the controller net which while timely was not always in agreement with subsequent intelligence reports. To provide a balance the controllers should review and purify all data. More

area should be observed but less data would be provided, thus giving indicators for intelligence processing.

21. OBSERVATION: Flow of intelligence information. Several items are of interest in regard to the flow of intelligence during the conduct of the game. First the MTM's intelligence parameters do not fit the requirements of a theater level game. The program was set to respond to BLUE intelligence requests based upon hexes (such a procedure is valid for those RECCE missions flown by the Air Force beyond the FLOT). Two observations are pertinent relative to the hex procedure. First it was not correlated with Maxwell and second (after the commencement of hostilities) we assigned the hex query system value as a theater/national level intelligence system. Neither was satisfactory. When at first we inputted numerous hex requests (on Day-one) we received a response only after the 24 hours Intelrep (printed at the end). Although there was a great deal of info received via this method it was unrealistic. This was primarily due to the fact that the volume was high, which may have contributed in the early stages to the delays experienced in the program's operation, and the fact that there was no portrayal of the natural degradation which would have occurred in the NORTHAG area due to the non-availability of intelligence collection systems as compared to CENTAG where the presence of US national systems would provide a much better appreciation of the disposition of RED FORCES. The manual input of intelligence after Day-one worked exceptionally well to compensate for the hex shortcomings. One additional hex problem needs to be noted. The Intelrep's reported on the basis of unit ID, activity and location. There was no continuity of units via the report (i.e. reporting based upon units, to include last known activity and location); each report was a discreet printout.

COMMENT: BLUE FORCES attempted to track RED FORCE moves based upon pattern

analysis, using preplanned RECCE requests and templating. The first day RECCE requests were not as successful as we had hoped (nor was targetting) due to our lack of understanding as to the method used to control validation of our requests (BLUE used a system at first based upon projected completion of RED unit moves to plan RECCE and BAI). Once the point and time aspect of the control procedures for target validation were known BLUE correlation of RECCE and targetting went well.

22. OBSERVATION: Game did not consider the use of deception planning for operations.

COMMENT The development and use of a properly orchestrated deception plan is needed to assist players in developing an understanding of how the Red forces would conduct operations and how Blue would facilitate the implimentation of a campaign plan. The use of a deception plan could be developed by providing dummy pieces; units in the data base with no combat power; and by extensive manual play by controller personnel. Some use by the Red team was made of a deception plan with limited success because the controllers were not informed of its use and failed to facilitate the action required for play of the plan.

23. OBSERVATION: Close attention should be paid to Red unit garrison locations in respect to their assembly areas.

COMMENT: In preparation for beginning the game, trial runs were conducted to determine how long it took to deploy from garrison to assembly areas. By placing unit garrison locations where they facilitate movement, i.e. prevent their having to go through too many rivers, etc., considerable time can be saved. This does not mean stationing Red Forces unrealistically close to the international border; just remove unrealistic restrictions to their mobility in this administrative configuration. During CARMAX 83, such corrections lessened Red deployment to assembly areas by two days.

24. OBSERVATION: Movement of airborne units.

COMMENT: Players must coordinate with the air force to ensure that the airborne units and the transport (aircraft) are at the same location, and that plans have been made for the employment of the airborne unit. The airborne unit must be attrited by 20% and a six hour delay is also imposed on the operation. A question that came up during this discussion for the operation is how would the Blue Forces conduct an airstrike in its own rear (CAS/BAI)?

25. OBSERVATION: Air sorties can be flown to either damage, delay, or destroy enemy units. Maxwell agreed with the need to slow the unit and determined the number of aircraft to accomplish the desired results. TWX has this capability but MTM is lacking in this capability. Players can consider tradeoffs among damage, delay or destroy only if both models and all players know exactly how many sorties are needed to accomplish the mission.

COMMENT: Realistically set the number of sorties for damage, delay or destroy.

26. OBSERVATION: The Red Forces assigned a Scaleboard Brigade to fire on a hex with 12 volleys conventional. Basic load of weapon is only 4 rounds--could not fire 12.

COMMENT: Some sort of data sheet should be readily available to both the team players and the controllers to ensure that a unit capability is not exceeded.

27. OBSERVATION: Currently, logistics factors are not played in the CARMAX war game. For the student/researcher to have a full appreciation of the problems associated with a NATO war in Europe, realistic logistical restrictions must be considered.

COMMENT: One of the most serious drawbacks to war gaming in the US Army is the tendency to downplay, or omit entirely, the logistical considerations that must be applied to any large scale conflict. In almost every instance that can be envisioned, logistical planning short-comings and the actual shortage of supply

are the true "war stoppers." Put another way, war gaming without logistical play is generally misleading and provides poor teaching points at best. This is even more true at the War College level of play. There are numerous arguments that would suggest that NATO Forces just might be able to successfully defend against a superior Warsaw Pact, if the logistical system and levels of supply are sufficient. Of course, it is widely accepted that they are probably not sufficient. If CARMAX does not include log play, students and other interested researchers will not have the opportunity to recognize, and attempt to correct, the true NATO military problem areas. Recommend that logistics be integrated into CARMAX for both Red and Blue Forces to the greatest detail possible. Logistical restrictions on the quantity of supply and the ability of the combat service support units to provide transportation and distribution support should be applied to the entire problem, both air and ground.

28. OBSERVATION: Play of allied Berlin forces (US/FR/UK brigades) not realistic.

COMMENT: Realistically, the allied Berlin brigades will have minimal impact on a NATO war in Europe. Additionally, in the MTM model, if these units are not deactivated during the deployment of Red Forces, they will cause unrealistic actions on/by Red Force units moving west around Berlin. It is also inconceivable that these brigades, which equate to approximately a division, would be left entirely alone with no Red Forces to restrict their operations. The most likely scenario would be that Berlin would be declared an "open city" and that East German army units would remain to contain the allied brigades in West Berlin. East German police unit would be unable to accomplish this mission. For future play, recommend that during the Red Force deployment phase the allied force Berlin brigades be deactivated to preclude unrealistic

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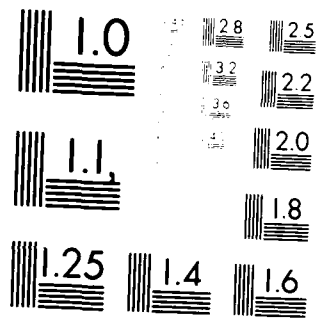
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interference with Red Force movement around Berlin. They then should be activated and Red Forces should position a minimum of three East German divisions around West Berlin to contain the allied brigades.

29. OBSERVATION: Two front operation play vice three front operation play.

COMMENT: Blue Forces operations were limited to Northag and Centag areas. Blue Forces did not play the Baltic area (Northwest Germany/Denmark). As a result Red Forces were artifically delayed from advancing and capturing their objectives. This is understandable since Red objectives would have been easily achieved without active play opposing their advance. For future games, Red Forces should play only the two fronts that oppose Northag and Centag. Blue Forces should continue to play AFCENT (Northag/Centag) flank units for both Red and Blue Forces should be played by controller personnel to add to the realism of the game.

30. OBSERVATION: Chemical. The RED forces fired chemical weapons on Blue Forces (French). This initial chemical attack raised the political issue of the French going immediately to nuclear weapons.

COMMENTS: Realistically the ability of either Red or Blue to positively identify every chemical/nuclear target is suspect. Intelligence must be analyzed but the Red clearly takes a risk if he fires chemical/nuclear rounds on unknown units that could be French. Controller judgment must be interjected to preclude unwanted early release of nuclear/chemical rounds.

31. OBSERVATION: At the end of the first day of play, there appears to be several items that needed attention and just didn't happen. For example, the Blue Forces had not made entries as of 060600 for increased strength by replacements, and the Red team had not requested any intel by hex or kept the forces moving when the Sitrep said they were avail.

COMMENT: Red Force, Blue Force, and controller team chiefs should make

personnel assignments within their teams to insure all requirements and desired actions are accomplished. Additionally, when all requirements are known and fixed, (i.e. a report at 1600 hrs daily), a checklist should be developed so that the team chief can insure all his actions are completed before releasing personnel for the day.

CARMAX MODEL OBSERVATIONS

1. OBSERVATION: Pre-hostilities intelligence information. During the period in which RED FORCES were mobilizing and moving into forward assembly/attack positions BLUE FORCES received exceptionally little information of intelligence value. Apparently neither the MTM nor the Air War College model provide for varying degrees of intelligence availability at different points in the scenario. In this particular instance BLUE'S intelligence estimate was developed in a vacuum since an estimate was needed to formulate a defense plan for both NORTHAG and CENTAG.

COMMENT: The flow of intelligence during the pre-hostilities period was totally insufficient for the requirement. (I would generally say that this must have also been an observation from the RED side.) Subsequent impact was felt upon those initial BAI targets and deep targets which BLUE desired to pass to BLUE Air Forces, and upon the use of such techniques as intelligence templating (time and spatial relationships of indentified RED FORCES) to support RECCE needs in the immediate cross border violation timeframe.

2. OBSERVATION: Intel summaries and unit ID not being played well.

COMMENT: The model prints out intel summaries every 12 hours. This is really not a summary since battle reports are not included in the summary. Numerous "unknown" units that appear on the intel summary are actually known because of battle reports. The intel summary is actually a compilation of intel efforts only. I would think that realistically the intel people would use battle reports to help update their summary that gets briefed to the commander every 12 hours rather than say "unknown unit."

3. OBSERVATION: Non-specificity of targets identified from intelligence

reports.

COMMENT: Intelligence reports did not specifically identify the type (i.e. armored division, mechanized division, etc.) of target that was located. In order to add realism to the existing scenario, inclusion of this specific type of information in the intelligence reporting scheme would warrant consideration.

4. OBSERVATION: Miscellaneous intelligence observations--MTM intel ought to key on unit designations/identities as earlier discussed--targetting results (chemical in particular) were too accurate and devastating based on hex locations--the control system did much to compensate for this shortcoming, but still I think that the missile units were too easily located, particularly in the CENTAG area (once fired the probability of location detection should increase, but in a hide it has to be low).

COMMENT: The intel input via the hex system needs to be improved. The limitation on BLUE to six hex requests per Corps did not prove to be a factor of importance by day two since the entire hex procedure was defective and by day three BLUE simply did not use the intel on hex as part of the intel functions for the battle. Specific recommendations are:

(1) Some form of information (combat info/target acquisition/theater intelligence) must be available to the respective Army Group commanders by RED FRONT and Army on a near-real time basis. The accuracy of this info can be set to degrade at the onset of hostilities (the transition from peace to war could be set at D-Day to go from 90% reliability to 70%, and this seems reasonable--in CENTAG it might be higher and NORTHAG slightly lower). Each Army Group commander ought to receive an intel report every 4-6 hours that is in a format like this:

SOUTHWESTERN FRONT

Units:	Location	Activity	Confirmed/Unconfirmed
48th MRD	BH 34	Combat	
38th MTD	unk	ukn	

The key is that the report would list all of the units under the opposing fronts and would retain unit continuity (the present reports contained a lot of unknown units)--the computer can track these units. The program should assign a value to confirmed/unconfirmed both in terms of location and unit identification--the 70% factor--this would permit for the frictions of intelligence.

(2) Intel on hex should be dropped in favor of a strict limit on unit requests--(e.g. the computer can be asked to provide info--at the next regular printout, at the six hour point--on a specific RED unit--the response would be based upon the collection probability.

(3) The AirLand Battle must be played from an intel perspective. The unit request system would support this. During CARMAX BLUE's highest intel priority was upon the OMG--once located we can assume that continuity would have been maintained. The manual RECCE results system devised during the second day of CARMAX was effective, and an enhanced approach along that line should be retained. We simply need an intel system that is timely, responsive to requirements and yet is sufficiently realistic on the one hand and on the other doesn't restrict the rest of the program.

5. OBSERVATION: On two occasions in the exercise, battle reports have indicated units in combat yet all intel reports, to include those asked for in Director mode, have shown that no enemy units were in any of the adjacent

hexes.

COMMENT: To compound the above problem, the battle report further indicated that multiple friendly units, some located as far away as five hexes, were being engaged by only one or two enemy units. Obviously there is a program glitch that needs correcting.

6. OBSERVATION: It has been noted that reserve forces that are called to the front arrive there with about 80 percent or less capability. This occurs because the model attrits combat power at a rate of 0.8% for each hex that a unit moves. This is reasonable for short moves but not for long ones as required by reserve units.

COMMENT: The reserve forces when they arrive at the desired position for combat should be attritted by some amount but a half of a percent per hex is too much. A unit should not enter combat below about 90 percent.

7. OBSERVATION: MTM has a moving unit attacked on flank or rear reducing its strength by 50% at the beginning of the first combat period. A unit attacked from the rear (while in combat) has its strength reduced by 50%. During the war game aircraft attacked units in defensive positions and on the move. The model does not discriminate between the two defensive conditions. As a result air attack results do not reflect greater losses due to exposed positions.

COMMENT: TWX and/or MTM must be considered for new programming to resolve the effectiveness unbalance.

8. OBSERVATION: The TWX model plays sorties while the MTM model plays systems. Conversion is critical in the MTM model since it involves combat power when an air unit is put in support of a maneuver unit. The model should be able to make this conversion without the air officer doing it by hand.

COMMENT: In the MTM model, there is really no way to degrade the number of

aircraft flying CAS for a maneuver unit. If a unit is losing combat power at the hands of a strong enemy, then most likely some of the CAS aircraft will be lost also. The model needs to be able to degrade the opposing aircraft during the battle and allow the number of usable aircraft systems to be reduced accordingly.

9. OBSERVATION: When a ground unit is lost or removed from the game due to damage, any aircraft that are assigned to that unit is also lost to the game.

COMMENT: This is an unrealistic situation in that maybe a few aircraft may be lost while the ground unit is being destroyed but the fact that a ground unit is lost should not cause the air unit to be lost to the players for the remainder of the game. As we are now playing the game, the control group is readjusting the air assets on a daily basis so we can/could adjust the situation. However, this is not a good way to play the assets and there needs to be some way that the players are alerted that they not only lost a ground unit but also the air unit is reduced by some amount and that the air unit is now or in the future available for new assignment.

10. OBSERVATION: Chemical. When opposing forces hit an airfield with chemical weapons--all of the aircraft were destroyed.

COMMENT: Airfields must be out of action for a realistic time considering decontamination procedures. A few aircraft would be permanently damaged and some pilots killed. With a reasonable time delay the remaining large percentage of aircraft would become available for missions.

11. OBSERVATION: Chemical. The play of chemical (and nuclear if played) as to the number of rounds available on both Red and Blue was uncoordinated and extremely variable. The controllers kept track and appropriately reduced units which players assumed were available. This resulted in inaccurate and wasteful planning.

COMMENT: A procedure for allocating realistic basic loads, such as CSR for delivery units should be provided to the players. Also included should be the number of volleys that unit is capable of firing. Realistic results of chemical attacks must be matched to terrain, type, and unit status (i.e. moving, defense position, etc.).

12. OBSERVATION: The algorithm for computing chemical weapons effects is unrealistic for NATO level wargames (i.e. 16km hex size, and division sized markers).

COMMENT: The current algorithm for chemical strikes degrades the combat power in a hex by a random number varying from 5% to 25% per "volley." This may very well be representative of reality when the hex sizes are small (1.6km-3.2km), but becomes unrealistic at the larger hex sizes (8km-32km). As example, during one battle situation Red Forces had concentrated three (3) divisions in one hex. Blue, through the use of only four (4) LANCE chemical warheads was able to inflict 9% damage to one armored division, 32% damage to another armored division, and 88% to another mech division!! During another occurrence, five (5) LANCE chemical weapons were employed against a Red armored division with the effect of 96% destruction. Conversely, five (5) SCUD volleys virtually eliminated one NATO division. The algorithm for computing chemical weapons effect must be reduced to more realistic terms, particularly when playing the larger hexes.

13. OBSERVATION: C³I and Logistics Targets. The CARMAX war game does not play the degradation of C³I through BAI attacks, or the degradation of logistics through BAI attack. Both are key to proper application of the Air-Land Battle doctrine.

COMMENT: Typical with all wargames, there is a tendency to downplay or not play the implications of C³I or logistics problems. The usual response is that

the actual play of these areas will restrict play and limit training value in other areas. This approach over time has led to the present situation where C³I has become one of the Army's most severe deficiencies. As a result, the CARMAX game must be changed so that attacks on C³I and logistics modes are rewarded. First C³I--attacks on enemy C³I must be rewarded. Game players must be given C³I assets and allowed to use them. When hostile Command Centers are hit, subordinate units should be impacted upon. This is especially true when Red C³I facilities are hit since we base our doctrine on the premise that Red C³I is very rigid and that without proper C³I, Red units will founder for lack of direction. One method of assessing damage would be to place arbitrary delays on units on the move and to add combat power, similar to CAS, to opposing units when in contact. As an example, if the Command Post of the 2d Guards Tank Army is hit, and knocked out or degraded, and subordinate units such as 9th and 16th Guard Tank Divisions are on the march, then those divisions should be given an arbitrary delay to portray the loss of direction from above. At the same time, if 21st and 25th Guards Tank Divisions are in contact with the 2d and 3d UK Tank Divisions and their C³I is degraded, then 2d and 3d UK Tank Divisions should receive a small increase in combat power. When using this system, the impact of the degradation or combat power increase should be low initially and increase over time. The overall impact should eventually drop off unless follow up attacks are made. Perhaps 6 or 12 hour increments could be used as those times coincide with the length of CARMAX battles. By using such a system, players would be able to more accurately portray the air-land battle and would be forced to make more realistic decisions on the use of BAI and the prioritization of intelligence assets to identify targets that are high payoff. These same procedures should be used for the identification and attack of logistic modes. A similar method should

be used to assess degradation of combat power. This degradation would occur more slowly than C³I but would last longer. If such procedures are initiated, CARMAX will require the detail of planning required by doctrine and will facilitate more correct and effective use of air assets and Lance.

14. OBSERVATION: It took three days and 18 hours to move Soviet forces from their current peace time locations to their designated assembly areas.

COMMENT: The reasons for such a long period of movement time was due to the fact that the MTM model was not programmed to use many of the existing roads and bridges that are actually there. Units did not take the most direct route to the assembly areas, but in some cases took routes that were out of the way due to the programming of the model for using the fastest routes of movement. Preplanned routes should be input into the computer during pre-day and bridges and roads not present in the data base should be incorporated. Another method would be to move units a minimum of five days in advance of D-Day in order to allow two days for resupply and maintenance. This would be needed to bring up the combat power of the units prior to attack.

15. OBSERVATION: The current computer program will cause units to take the fastest route possible when given move orders. This is fine when units are not in contact or you are moving units in an administrative manner. However, it becomes unrealistic and cumbersome in combat. This can best be demonstrated by example (see comments).

COMMENT: On the NATO hex system, let us assume that the commander desires a combat unit to attack towards a new location along his assigned axis of advance. The unit is located on AU67 and it is desired that the unit proceed directly to AP70. If given the order to move from AU67 to AP70 with one move order, the current computer program will cause the moving unit to move to AT68, catch the autobahn and proceed out of sector through Hannover, etc., to AP70.

This, of course, is not the desired reaction and literally becomes a "game stopper" as units end up in locations their players never intended, fighting opposing units that were never intended. Recommend the program be changed to remove this unrealistic encumbrance.

16. OBSERVATION: BAI targeting for bridges and other fixed targets.

COMMENT: Destroyed bridges and other fixed targets apparently had little if any affect on enemy unit movement. Changes should be made to the program to increase the value of fixed targets which would restrict or impede unit movements when destroyed bridges or other fixed movement related targets are encountered.

17. OBSERVATION: When deploying red forces forward to their pre-war assembly areas, they cannot be placed in hexes that are congruent to the international border; if they are and Blue Forces are deployed to their GDP locations, combat will occur.

COMMENT: In order to have the D-Day attack occur in a timely manner, it is necessary to assemble Red Forces in a hex that is adjacent to the international border. However, as stated, premature combat can occur. To prevent this from happening, controllers must hold the Red units at least one hex away from the border until the D-Day/H-Hour. Once the attack order is given, controllers, using the DIRECTOR MODE, move those held back units forward to their assigned hexes along the international border. This should be followed immediately by the D-Day/H-Hour attack move orders in the PLAY MODE.

18. OBSERVATION: Moving units cannot bypass enemy units.

COMMENT: Air-land battle requires ground maneuver units to strike deep to destroy 2nd echelon armies and critical C³ and logistic facilities. The force making this attack will be led by an advance guard which will provide early warning of the presence of enemy units along the axis, fix the force, and allow

the main body to either fight thru or bypass. Since speed and timing are critical, a bypass decision is likely. The model does not allow such an action thus causing inordinate delays in the counter attack. Recommend adding a bypass capability if certain conditions are satisfied, i.e. combat power, open hex and conducting a counter attack.

19. OBSERVATION: The model does not appear to limit the number of units allowed to occupy a single hex.

COMMENT: Even under the most ideal circumstances, a single hex (16km) will not accommodate the combat power of more than two US type divisions. However, for the purposes of movement alone, more than two may be passing through a single hex at one time. Recommend that the combat power in a single hex generated solely by the ground combat unit (i.e. exclusive of air/artillery support) be limited to that of two divisions plus assigned support and combat power multipliers.

20. OBSERVATION: Indirect fire units for the Blue side could not be used on the first day of the battle because of a data base error. Lance and Pershing units had been coded indirect fire equal zero. There were other less critical mistakes in the data base.

COMMENT: Recommend the data base be more carefully reviewed before the game starts. Suggest assigning someone as data base administrator who is solely responsible for the quality of the data base.

21. OBSERVATION: Separate Soviet army and front artillery and helicopter units are not played in the CARMAX game.

COMMENT: Soviet helicopter and artillery units represent a substantial proportion of Red combat assets (combat power) and are, therefore, an extremely important asset in weighting the attack. Thus, artillery and helicopter units

should be played as separate units with appropriate combat power.

RECOMMENDATION: One proposal to accomplish this goal is to handle artillery units in direct support separately from units in general support. The direct support units would be assigned in "support of" a ground unit to add combat power to that ground unit. The "other" artillery could then be assigned to "fire supporting" missions in direct relation to the principle axis of attack to weight that attack and to hit targets identified by the Front Commander. The helicopter units will require an addition to the data base.

22. OBSERVATION: Artillery. The success of any unit's operations depends to a large degree on the efficient use of all its combat capability. The corps normally has an artillery brigade committed to either the main attack or vital defensive sector. Equally distributing these corps artillery assets is not realistic or tactically correct.

COMMENT: Add corps artillery units to the model or the capability to support units making the main attack or the critical defensive sector.

23. OBSERVATION: Inappropriately high loss of Lance rockets.

COMMENT: Three battalions of Lance rockets were lost in the first day of hostilities in the CENTAG area. This degree of loss is disproportionately high as the Warsaw Pact forces shouldn't have been able to target these units with such a degree of accuracy under normal circumstances. It is recommended that action be taken to degradate the kill percentages to a more realistic level.

24. OBSERVATION: Lance rocket use.

COMMENT: Lance rockets utilized in the conventional mode inflicted less than 1% damage to those targets hit. It is recommended that the use of Lance rockets in war game play be restricted to chemical and nuclear use.

15. OBSERVATION: Unconventional Forces. The air-land battle as stated in FM 100-5 and FM 100-15 clearly indicate UW operations but this critical war-fighting capability is not modeled.

RECOMMENDATION: The model can be programmed to incorporate the capability of UW to delay and disrupt enemy movement. UW units should be "air dropped" into hexes and a delay to all forces who enter hex. Care must be exercised not to make UW unit too strong and nondestructable.

26. OBSERVATION: ACR cannot be used to cover the full corps covering force sector.

COMMENT: Armored Cav Rgmts used to provide corps covering forces are represented by single units. As such, they can only cover a portion of the corps sector. Recommend that ACR's be played as squadrons so that they could cover the entire corps front. In addition, allow them to withdraw immediately upon contact or at a preset time interval and not require them to remain in combat for a minimum of 6 hours and be destroyed.

27. OBSERVATION: Engineer. The MTM model delays units for 12 hours by bridge destruction and 6 hours for roads. The unit itself (with organic engineers, then repairs the damaged bridges and/or roads. No consideration for weighting the main attack or strengthening a main defense sector by Corps Engineers is played by the model. While operating over multiple routes or economy of force missions the Corps Commander realistically can provide additional assets to key areas.

COMMENT: Don't make engineer units too strong or nondestructable but provide them with combat reinforcing power and add special skills to supported units (i.e. move along multiple routes at greater speeds in rough terrain). Input these units into the model to also play implementing, arming and executing a barrier plan within realistic logistical/transportation capabilities. Also let

units with supporting engineer units cross rivers quickly.

28. OBSERVATION: Missile units cannot receive orders when they are moving.

COMMENT: A missile unit should be able to receive a mission in the model while on the move or in the process of firing another mission and place it in a queue to be acted upon, following its current activity. At this time, the model states "unit not available" and the mission must be resubmitted at a later time.

29. OBSERVATION: Unit activities (computer play) needs to be made more realistic.

COMMENT: When a unit has been assigned a mission such as a move or a fire mission and an attempt is made to give it another mission the response is "unit not available." This process is not realistic in that the system does not allow to hold the order in the queue and make the assignment as soon as the present mission is completed. The operators need to be able to make a decision on the planned or next assignment of a unit and get it in the computer and then be able to be assured that the action will be carried out without further thought about the unit.

ANNEX C: SUMMARY AND RECOMMENDATIONS

Player's Guide
for
JOINT
UNITED STATES ARMY WAR COLLEGE
AND
AIR WAR COLLEGE
CARMAX
WAR GAMING MODEL

Section I
INTRODUCTION

The purpose of the Player's Guide is to provide the student playing the CARMAX joint theater-level war game the essential knowledge necessary to play the game on the Altos Microcomputer. Information concerning the conduct of the war game and the computer interface is covered in some detail in this guide. Descriptions of the model, game maps and overlays, playing pieces and other administrative information is also outlined. The CARMAX War Gaming Exercise is played using a closed, two-sided, computer-assisted simulation. The model/program on the Altos Microcomputer 8000-10 is coded in PASCAL computer language.

The basic program will accommodate a war game designed to simulate combat in any part of the world for the strategic, operational, and tactical levels of command decisionmaking. Although the model will play at all three levels it is designed primarily for the operational level of war. The framework within which the war game is to be played will require that the student reorient his thinking below the strategic level of most of the earlier instruction at the Army War College, and above the level of tactics with which he probably has been most involved in previous assignments. Concern of the player during the CARMAX war gaming exercise will be for that intermediate level of war associated with Corps and Echelons Above Corps operations which is distinguished within the Army's current AirLand Battle Doctrine as the operational level of war fighting. (See FM 100-5).

The following information is provided to illustrate the tremendous flexibility available through the use of the CARMAX war game model. A division

level game would employ battalion size units to exercise the operational aspects of the game; a corps game employs brigade size units; and the army group game such as CARMAX employs division size units. Efforts are underway to allow a full scale theater-level game to employ corps size maneuver units to facilitate the exercise and assessment of the AirLand Battle Doctrine to its fullest extent. The time-rate of the game, that is, real time to battle or game time, can be increased or decreased by the player at will. The selected or preferred game time is totally dependent upon the objectives set for the exercise. The game may also be stopped at any time for any reason with the built-in capability to save all the data created up to that point at which the game is stopped. The flexibility of permitting the game speed to be changed enables the student to benefit fully from the game by emphasizing the decision-making process of the commander where the routine decisions are left to the model for execution. On the other hand, the model may be slowed to allow for detailed staff employment and analysis during critical periods of assessment.

The remainder of the CARMAX Player's Guide is presented in three sections as follows:

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Section II

MODEL DESCRIPTION

A. GENERAL.

1. Computer models used to facilitate the conduct of war gaming exercises can not provide for the complete and detailed simulation associated with the complex nature of war fighting. The models can not provide solutions or answers to all the problems faced by commanders and staffs in dealing with all the situations which appear on the battlefield. War gaming models can only provide the user with a medium through which a good assessment can be made of the numerous related and non-related factors affecting the overall conduct of battle. The CARMAX war game model is no different from any other computer model in its method of using parametric calculations of the effects of the various factors related to showing battle outcomes. Game rules, game parameters, and algorithms are necessary for this model to work just as they are for any other model. A basic understanding by the student player of these factors will enable him to get a better appreciation of the game and how the model facilitates play and decisionmaking.

2. The most important aspect of a war game is the battle simulation, i.e., the ability of a model to realistically portray the results of combat. Central to this ability is the concept of combat power (see FM 100-5 for a definition). Combat power is made up of tangible (material) and intangible (psychological) factors. The model attempts to simulate the tangible and intangible factors of combat power. The tangible factors are represented by aggregation of combat, combat support and combat service support functions. Some of the intangible factors are represented by the threshold or withdrawal concept used. Other intangible factors such as leadership, operational skill, and boldness are developed through the dynamic interaction between the opposing

teams of players.

3. The CARMAX game allows the player to express his concept of operation through orders placed into the computer. To do this the player must first make an estimate of the situation and develop his campaign plan and courses of action. In conjunction with the concept of operation the player must consider how he can influence the battle through the application of the following measures:

- a. Air Sorties
- b. Artillery Battalions
- c. Attack Helicopter Units
- d. Other Maneuver Units
- e. Engineer Units
- f. Intelligence Collection Assets
- g. Supplies (Logistics)
- h. Replacements
- i. Boundary Changes/Realignment

4. The game emphasizes the decisionmaking cycle of the commander by playing a 24 hour period at high game speed while allowing the routine decisions to be made in the model. It may also be played to allow for detailed staff work by running the game at a slower pace and employing less aggregated modules.

B. DEFINITION OF TERMS.

1. Some game parameters and algorithms must be adjusted to correspond with the changes in the scale of the map and size of the units, e.g. division pieces. The map scale and the hex size must be directly related to the size of the units employed in the game. Hex size and unit size must also be in the proper relationship in order to reflect doctrine and weapons systems ranges.

The hex size is a function of the size of the map used under the standard hex overlay.

2. Examples of map scale and hex sizes are as follows:

NOTE: the actual measurement of the hex on the overlay is 1 1/4 inches across.

<u>Map Size</u>	<u>Hex Size</u>	<u>Type of Game</u>
1:1,000,000	32 km	NATO Theater
1:500,000	16 km	NATO Army Group
1:250,000	8 km	Army Corps
1:100,000	3.2 km	Corps/Division
1:50,000	1.6 km	Division/Brigade

3. Terms used in relation to the conduct of the game are as follows:

War Game Rules: a prescribed guide established for the conduct of a specific game designed to meet specific objectives for learning.

Game Parameters: Fixed values related to the units and interrelated game factors.

Algorithms: A step by step procedure or formula which is used to convert concepts of game interaction into processable computer language.

Unit Strength: Strength of a unit based on the weapons systems and unit configuration for a given type of unit (weighted unit values).

Combat Multiplier: A factor used to represent the effects of terrain, unit activity, unit position, etc. This can be an advantage or disadvantage for the unit.

Combat Power: A factor calculated by multiplying the unit strength by the combat multiplier.

Force Ratio: The ratio of opposing forces' combat power used to

determine combat loss resulting from battle through the use of a modified Lanchester Square Law calculation.

Time-Rate: The speed of the game (real time to battle or game time) can be increased or decreased at will depending on the objectives of the exercise. The game may also be stopped for any period of time without affecting the results or game play.

4. Examples of rules and parameters used for war game simulation:

<u>Forces</u>	<u>Basic movement Rate (Parameter)</u>	<u>Unit Strength (Parameter)</u>
DA Jutland Div	6 km per hour	25 points
US Armor Div	6 km per hour	42 points
UK Armor Div	6 km per hour	35 points
FR Armor Div	12 km per hour	20 points
UR Tank Div	8 km per hour	38 points
GD Tank Div	8 km per hour	30 points
PL Armor Div	8 km per hour	25 points

C. COMBAT SIMULATION.

1. Combat Routine. Units will automatically engage in combat when units of opposing forces are located in adjacent hexes. The stationary unit is the defender and receives a time-in-hex and/or a combat multiplier for terrain. The moving unit is assumed to be the attacker. If both units are moving, it is considered to be a meeting engagement and neither unit will receive a time-in-hex multiplier. However, if one of the units is deemed to be attacked from the flank or the rear, that unit will have its combat power reduced by a large factor which in effect gives credit for a surprise attack. Periodic battle reports will automatically be printed out for each engagement at a time interval set in the game parameters. Battles will continue until one side withdraws, is ordered to break contact, or is destroyed. Units may be given

move orders while in combat but must wait until the battle period is over before executing the move. In breaking contact, a unit will lose 1% of its strength. The unit strength figures listed in the report of battle are those at the end of the battle period. In addition, the battle report clearly shows the actual combat power figures of all forces engaged in the battle. In CARMAX the battle period is 12 hours after which a Report of Battle will be printed describing the battle results.

2. Ground attrition calculations.

a. The outcome of combat is determined by the combat power ratios of the forces engaged and is expressed in attrition to each side (____% of loss to Red and Blue Forces). Terminology used in computing ground attrition is as follows:

CR = Combat Ratio

CR(B) = Combat Ratio for Blue = Red Combat Power divided by Blue CP

CR(R) = Combat Ratio for Red = Blue Combat Power divided by Red CP

CRA = Combat Ratio Adjustment factor based on historical evaluation

Attrition Formula: Unit loss = 1% X CR X CRA

Examples of combat ratio adjustments:

CR	X	CRA	=	Total Loss in %
1.0 : 1.0		1.0		1.0
1.25 : 1.0		1.25		1.55
1.5 : 1.0		1.5		2.25
2.0 : 1.0		2.0		4.0
3.0 : 1.0		3.0		9.0
4.0 : 1.0		4.0		16.0
5.0 : 1.0		5.0		25.0
6.0 : 1.0		7.0		36.0

7.0 : 1.0	9.0	63.0
8.0 : 1.0	9.0	72.0
9.0 : 1.0	9.0	81.0

b. Attrition/loss. Several other factors affect the combat power of the units which are played in the game. Students must be cautioned that the impact of these factors may not be realistic but they serve to provide some semblance of realistic effect on units. As these factors are studied and researched based upon historical evidence and practical test, then the factors will be changed to reflect the actual impact on units in battle. The factors used are portrayed to cause the commander and his staff to take into account the impact of these factors or situations on his decisions to employ units in combat. The factors and/or situations and resulting influences on units are as follows:

<u>Cause</u>	<u>Attrition</u>	<u>Supplies lost</u>	<u>Delay in Movement</u>
Combat	Loss Formula	none	Movement Stopped
Breaking Contact	1% loss	none	6 hours
Entering Chemical Contaminated Area	Red 5% loss Blue 10% loss	none	1 hour 1 hour
Receiving Nuc Atk	40 to 90 %	40 to 90 %	4 hours
Receiving Chem Atk	Red 5 to 25 %	5 to 50 %	2 hours

c. Attrition resulting from the use of air force aircraft and from helicopters are dependent upon the type and number of aircraft used to conduct the attack. Information as to aircraft capabilities is found in TABLE III and IV. Time delay to the movement of units being attacked is assessed at 4 hours. Aircraft and helicopters used to attack specific targets must be listed in the game data base as air units otherwise they cannot be used in this role.

d. Artillery and some air support can be simulated by supporting a

ground maneuver unit by assigning a mission to a specific artillery unit or air force unit. This allows for the player to consider the influence of assigning direct support type of missions to facilitate his combat operations. Points are added to the ground unit's strength on the basis of 5 points per artillery battalion assigned such a mission. Points added by the assignment of aircraft are calculated based on the number of aircraft assigned to the supporting mission. The value added is a linear increase related to the total number assigned.

3. Threshold Effect. Units have a threshold factor that can be set from in terms of percentage of unit strength. When a unit, as a result of combat, reaches its threshold level the unit will withdraw from the battle. However, the unit will not withdraw until the end of the battle period at which time the unit strength may be well below the threshold level set for that unit. For example, a blue unit's threshold level is set to 70%. When the unit has been reduced to 70% of its unit strength due to a battle, the unit will attempt to break contact and withdraw to an adjacent hex. This will be done at the end of the battle period only. If it moves into an adjacent hex in which combat could result the unit will automatically engage in combat with a new unit. The unit will also lose 1% of its strength due to the break contact rule of the game.

4. Effects of Withdrawal. For each 24 hours of combat in which units are engaged, the threshold level of the units will automatically be raised by a factor of 5%. A unit may be taken out of combat and have its threshold reduced as a result of rest and recuperation. The threshold level in this case must be changed manually by the player in the computer. It must be noted that a high threshold reflects a poor capability to sustain combat. A low threshold reflects an increased capability to sustain combat. If a unit cannot retreat due to the location of enemy units, it will be removed from the game when its

strength falls below 25%.

5. Terrain Parameters. Terrain in the war game model is represented by several general classes or types of terrain. It is virtually impossible to provide for the effects of each and every type of terrain conditions that might have affect on a unit's performance. The types of terrain also provide for combat multipliers and for effects on movement rates. The effects are represented as follows:

<u>Type Terrain</u>	<u>Defense Combat Multiplier for Terrain</u>	<u>Movement Rate Multiplier (Basic Rate X Terrain Multiplier)</u>
Open	1.0	1.0
Hilly	1.25	0.5
Desert	1.25	0.5
Mountain, Swamp, Forest	1.50	0.0625
Urban, small	1.10	0.95
Urban, medium	1.25	0.8
Urban, large	1.50	0.25
Highway	-	3.00*
Road	-	2.00*
Trail, Bridge, Tunnel, etc	-	1.25

* Rate on highway, road, and trails will be reduce marginally by the above terrain multipliers.

6. Time-In-Hex Parameters. As indicated earlier, units occupying a hex location will be affect by the amount of time they spend in that hex without moving. They are deemed to be improving their defense posture by remaining stationary for some period of time and therefore would not be surprised or overcome by an attacker. The parameters used to affect the combat power are as

follows:

<u>Time-In-Hex</u>	<u>Defense Combat Multiplier</u>
Less than 1 hour	1.0
1 hour to 72 hours	1.0 to 1.50
72 hours to 144 hours	1.5 to 2.00

In computing the defensive posture combat power of a unit, the calculation is made by multiplying the terrain multiplier times the time-in-hex multiplier times the unit strength.

7. Tactical Surprise Effects. A unit that is moving may be attacked on the flank or from the rear. This means the unit can be attacked on any of the five sides of the hex on which it is located as it moves other than the side toward which it is moving. The strength of the unit will be reduced by 50% at the beginning of the first combat period. This reduction or loss in unit strength is permanent. A unit in combat which is attacked from the rear will have its strength reduced by a factor of 50% also. An operational surprise effect may be played by the controller against units that are stationary. By using the Director's Mode the Controller can increase the strength of an attacking unit for a specific period of time to simulate a surprise operation against an enemy flank or rear. The Controller makes the determination of the effects of operational surprise based on the ability of the two sides to accurately depict the location of enemy units on their situation maps. The degree of surprise is expressed in the amount of points added to the attackers unit strength. The Controller can also simulate the results of cutting LOC's by reducing the number of systems supporting a unit.

8. Administrative Type of Attrition. All ground maneuver units lose .25% of their combat strength for every 10 km they move. For example, a unit which moves 32 km will encounter a loss of .8% of its combat power. Units movement

is delayed by bridge construction for a period of 12 hours. Automatic bridge and road repair is effected by a unit which occupies the hex where the repair is needed. This action occurs only if the unit has been given the capability to conduct such activity in the game data base. Delay encountered with this type of activity is for 6 hours in the case of road repair and 12 hours for bridge repair.

D. INFORMATION AND INTELLIGENCE.

1. Report Formats. For both Blue information and intelligence reports, there has been a effort made to put the applicable information/data into a generalized NATO type of format. This format is not exact and only attempts to resemble the formats of reports used by units throughout Allied Command Europe. The following line entries in the reports are fixed format and appear for message completeness only.

NATO (classification) - Unclassified

SIC (Subject indicator code) - 777/999

EXER (Exercise name) - USAWC _____ War Game.

AMPN (free text amplification) - Not Applicable

NARR (free text narrative) - Not Applicable

RMKS (free text remarks) - Not Applicable

The remainder of the reports will appear as follows. Blue force reports only will be in the NATO format.

LANDSITREP may be requested on an individual unit by the players on demand. It requires 1 hour of game time to compile and 2 hours delay in getting the information to the commander (printed out on the computer printer).

MSGID will be the date/time group for a day of battle. Example: 011200 means 1200 hours on Day 1.

EFDT will be the effective date/time group of the message

information, usually 2 hours before MSGID.

PART lists information from left to right as follows
UNIT/PARENT/LOCATION/MISSION/DEST/COMBAT EFFECTIVENESS/HELICOPTERS #. MISSION
will be given as combat, moving or stationary.

LANDSITREP will be reported on the entire force every 12 hours. Be
advised that the Red report format will be different from the Blue report.

AIRSTAT will follow the same format as the LANDSITREP with the
exception as follows: PART lists Blue information from left to right as UNIT /
PARENT / LOCATION / OHAND-AUTH / AVAIL / MAINT / QRA / DCA / ESCORT / BAI / CAS
ACTIVITY /. The Red format is different from the Blue report.

2. Opposing Force Information. Periodic intelligence reports are printed
every 24 hours giving information on the opposing forces. Periodic BATTLE
REPORTS are printed out at the end of the specified battle periods. The
information provided in these reports pertain to all the major units in contact
for that battle. In the case of a Blue intelligence report on Red units the
format will be a NATO type of format as follows:

LANDINTREP will have the same basic heading. The difference is in the
information listed under the GBAT. From left to right UNIT / PARENT /
LOCATION/ STATUS/ COMBAT EFFECTIVENESS/ ROLE. The ROLE is not currently played
but will indicate the unit to be identified as EW, NBC, special operations,
airborne, etc. STATUS will be moving, stationary, or combat.

AIRINTREP is not used in the CARMAX exercise.

3. Intelligence/Information Rules. Intelligence information gathered on
opposing forces are subjected to certain probability rules which affect
detection, identification, and activity determination. The percent assigned
these characteristics can be set in the game parameters for each side played.
The factors are usually based on actual capabilities of the forces involved as

provided by intelligence sources. All intelligence information in the game is subject to being degraded by 50% because of adverse weather conditions such as snow, rain or fog.

4. Intelligence information may also be requested by the players for a given hex. The number of requests may be limited by the controller to simulate the resource allocation for a given level of headquarters in the game. The information received in response to a request by hex will be printed out after the Periodic Intelligence Reports are printed every 24 hours of game play.

5. The game also allows for random enemy radio traffic interception. These factors are entered in the game parameters as a percentage of permitted intercepts or jamming. For example, movement orders typed in by players for units on their side may also be printed out on the opposing force printer as an intercepted order.

G. COMBAT SUPPORT/COMBAT SERVICE SUPPORT:

1. Combat support and combat service support can be aggregated to reflect increases or decreases in combat power. The allocation of support assets to subordinate units is made by the commander and the model automatically increases the strength of the subordinate units. The aggregation of combat support can simulate the effects of air, attack helicopter, artillery, engineer, etc., by increasing the combat power of the maneuver units. Likewise, the aggregation of combat service support can simulate the impact or influence of ammunition, POL, rations, etc., by increasing or decreasing the combat power of maneuver units.

2. Notional units are used to represent aggregated combat service support functions. Points from these units are then added or subtracted from the maneuver unit depending on the circumstances. Maneuver units will begin the play with combat service support points representing the normal supply process.

Only when there is a shortage of supplies or when an LOC is disrupted will points be subtracted from the maneuver units. This notional combat support is represented by systems with each system having a value of 5 points of combat power. Combat service support points will always equal the combat points of the maneuver unit to which the support is provided. Combat support and combat service support units when attacked by ground units stop their support of maneuver units. When displacing the supporting units continue to support and but they cannot accept new support orders. Maneuver units will begin the play without combat support points. The controller through the Director Mode can simulate the effects of cutting LOC's and of supply shortages. Unit strengths can be reduced to reflect the lack of supplies.

3. Logistics. At the option of the faculty instructor and to meet the specific objectives of the game a detailed simulation of the impact and influence of logistics on the overall battle or operation can be played in the game. Units are programmed to consume supplies based on the unit's size and activity as indicated in the example presented below. Supplies are allocated to various depots representing the levels of command in the game. While consumption is automatic based on parameters set for the units, distribution of the supplies is not. Distribution from the depots to the units is based on decisions made by the players and subsequent commands given to the computer for resolution. A logistics status report for all units will be printed out every 24 hours of game time. The example of logistical play factors is provided in TABLE I. Playing logistics can have a detrimental impact of the units involved. For example, if a unit runs out of POL the unit will not be allowed to move. If a unit runs out of ammo it will be considered destroyed and removed from the board. Each type of unit has a gross weight figure. As the unit is attrited this figure is reduced and the amount of supplies required by the unit is

reduced accordingly. Careful consideration must be given to the play of logistics in this game.

F. NUCLEAR AND CHEMICAL:

In the CARMAX exercise the play of nuclear and chemical is not considered to the extent that it could be. No nuclear exchanges take place because the aim of the game is to operate solely in the conventional environment. However, chemical exchanges are played with control exercised by the controllers as to the type of targets attacked and the number of missions fired. This restriction does not in any way preclude the game to consider the effects of playing both nuclear and chemical actions in a greater role in the battle or in support of the commander's overall campaign plan. The range parameters of each type of unit delivering these munitions are specified in the unit data base as characteristics of the unit. In addition the unit must also be given the capability to conduct this type of mission in the capabilities column. See TABLE II for the various systems delivery characteristics.

G. THE AIR BATTLE:

For the CARMAX war game, all aircraft missions with the exception of the aircraft assigned for Close Air Support are handled by the players at the Air War College. Our model simulates the application of Close Air Support aircraft in the direct support role of the ground maneuver unit. In addition, the application of helicopters in the direct support role can be played. Points are added to the ground unit's strength based on the number and type of aircraft assigned direct support missions. Attrition suffered by aircraft in the CAS role is computed in the model and this information is extracted from the LANDSITREP and passed to the players at MAXWELL for resolution. Ground to air loss to aircraft results when aircraft pass over enemy units. The parameters specified for the opposing forces are set for each of the units in

the data base in the form of a probability of damage. This probability is also subject to the weather conditions played in the game. Night and adverse weather reduces the effectiveness of ground to air attrition by a factor of 50%. In addition, air defense units are considered to be colocated with the ground maneuver units. Air Defense is reduced by 50% whenever the maneuver unit is in combat. TABLE III and IV contain the air combat factors and characteristics for the Blue and the Red air units respectively.

Section III

ORGANIZATION AND EQUIPMENT

A. ORGANIZATION.

1. General. The game is played by three groups of players each of which have specific duties and responsibilities in the conduct of the game. The groups of players are the CONTROLLERS, the BLUE Team, and the RED Team. The BLUE Team and the RED Team composition is left to the discretion of the faculty instructor in order that the objectives of the game can be met and the decisionmaking process exercised during the conduct of the game. Generally, the players will be given positions that reflect the various commanders and staffs that are found at the levels of command being studied in the war game. Their duties and responsibilities are those normally found and expected for the specified level of commands and staffs. For example, in CARMAX the positions of COMNORTHAG and COMCENTAG with their respective G3, G2, G3 AIR, and G4 are played in a game because it deals with the Army Group in Central Europe. The number of positions played is dependent upon the game, its objectives, and the number of players available to play the game.

2. Control. The entire game is played under the control and supervision of the faculty instructor. He exercises this control through the use of the student CONTROLLERS who are responsible for the complete management of the game both administratively and operationally. CONTROLLERS exercise decision and control functions in the implementation of the game rules and parameters as they affect the conduct of the game. They introduce factors and variables which may not be played in the computer but which if played could affect the results of the overall game. The CONTROLLERS are the primary interface between the players and the computer. At no time are the players permitted to assume the role of a CONTROLLER for the purpose of inputting changes or decision

criteria into the computer. CONTROLLERS will have complete access to the data that is available to each of the player teams both at Carlisle and at Maxwell. This is necessary to insure that the information and data affecting play is being processed and considered at the appropriate time for realistic play of the game. One of the student CONTROLLERS will be appointed by the faculty instructor to be the Chief Controller. In the absence of the faculty instructor, the Chief Controller will assume full decisionmaking responsibilities for the conduct and exercise of the game.

B. EQUIPMENT.

1. General. The equipment necessary to support the conduct of this joint war gaming exercise includes maps, hex and terrain overlays, magnetic playing pieces, the ALTOS microcomputer and its peripherals(i.e., CRT or VDU, keyboard, printers, disks, etc.), and appropriate software for the computer. In addition, map pins, pencils, paper, acetate, and other administrative supplies are be available for the players to use as they play the game.

2. Maps. The CARMAX game is played using maps of the Central European Theater having a scale of 1:500,000 and 1:1,000,000. The 1:500,000 scale map if overlayed with a hexagonal grid network with the hex representing a linear distance of 16 kilometers. In addition, these maps may be overlayed with terrain overlays and operational overlays as deemed necessary by the players. The smaller scale map is used for the general situation and planning while the larger scale map is used to reflect the current situation and intelligence information. Also available to the players is the hex print out in the same size as the hex overlay. This printout is provided by the printer through a special computer program. Use of this feature may facilitate planning and assessment activities of the players. It is an optional capability for the players.

3. Hex/Terrain Overlays. The hexes are numbered in the south to north direction with the numbers ranging from 1 to 108 and are lettered in the west to east direction with the letters ranging from AA to BO. The coordinates given for a hexagon are expressed specifically by its letters followed by the numbers, e.g., AC71 or BE101. Because of the hexagonal grid system, the rows and the columns have either an odd or even characteristic. Primary terrain features are depicted on the terrain overlay and are designed to highlight the theater-level avenues of approach in the Central Region. Both terrain and the highway/road features will affect the speed of movement of units and their related combat power. It must be noted that the game can readily be played without the terrain overlay since the terrain characteristics are coded into the hex data base supporting the game. Listed below are the terrain features that can be used by the model:

FEATURE	SYMBOL
Mountains	Black mountain peaks
Hills	Black hill w/o peaks
Open	Clear hex
Urban	Red building
Rivers/Shore	Blue hex border
Highways	Wide red lines
Roads	Narrow red lines
Borders	Yellow hex border
Airports	Airplanes

4. Playing Pieces. The units listed in the game orders of battle are represented by standard military symbology on magnetic pieces of three sizes. Indicated on each piece in addition to the unit symbol is a number in the upper left-hand corner. This number represents the unit identification number for

the data base. It also facilitates passing information to the Maxwell players as their model uses only unit identification numbers. Until their model is changed this procedure is necessary to play the game.

5. Unit and Hex Data Bases. Associated with each unit in the data base are specific characteristics necessary for the computer to process the game data. These characteristics include type of unit, combat strength, movement speed, special capabilities (engineer, nuclear, chemical, etc.), and fire power indices. Air units have many of the characteristics listed in TABLE III and IV. In the data base, there are specifically three types of units that are considered by the computer in the process of playing the game. They are LAND, AIR, and CS/S. The latter are units placed in the combat support/direct support roles such as engineers, artillery, helicopters, and aircraft. CONTROLLERS are given limited access to these data bases to effect changes necessary to play the changing data/information/situations encountered in the game.

Section IV

ALTOS MICROCOMPUTER

A. GENERAL.

The CARMAX war game is played using a microcomputer system called the ALTOS MICROCOMPUTER SYSTEM. The system itself consists of the microcomputer with a Winchester disk drive, two visual display terminals, two printers, and appropriate software programs to support the operation of the system. The entire operating system (MP/M II Operating System) manages the computer and all the peripherals. Each team playing the game has direct access to a terminal and a printer which allows for simultaneous interaction between the players and the computer. In order to facilitate an understanding of the microcomputer and the role it plays in the conduct of the CARMAX game a brief discussion of microcomputers will follow. See TABLE V for the instructions on how to specifically interface with the computer for game play.

B. MICROCOMPUTERS.

1. A computer is a system made up of units which are pieces of hardware such as electronic circuits, printed circuit boards, switches, lights, etc., that perform operations on given inputs to obtain required or desired outputs. These operations are performed by a particular set of steps or algorithms called programs or software.

2. A microcomputer has a microprocessor as its central processing unit (CPU). This processor is a digital integrated circuit that contains the digital functions necessary to be a CPU. It processes information and controls the system harmoniously as it responds to the algorithms that the CPU follows. The microprocessor tells all the other system components what to do and when to do it. It performs all the arithmetic calculations and makes decisions for the

rest of the entire system. It is much like the control center of any other system such as the human brain or the master switching center of a rail yard. The microprocessor turns on and off all the system components in the proper sequence and at the proper time which insures that the system works in harmony.

C. COMPUTER COMPONENTS.

There are basically five main parts or components of the computer or microcomputer. These five components or sub-systems are found, in one form or another, in every digital computer, whether it is a massive mainframe computer used by the Department of Defense or a microprocessor that is used to control the actions of a model railroad. The five main sub-systems are as follows:

CENTRAL PROCESSING UNIT - The brain of the computer where arithmetic calculations are made; controls all operations.

MEMORY - An electronic storage medium used to hold the software such as the operating system.

INPUT/OUTPUT DEVICES - These devices link the machine with the user and include printers and terminals.

INPUT/OUTPUT INTERFACES - These are the "middlemen" between the CPU and the I/O Devices. They provide the actual hard-wired controls of the I/O device according to the commands issued by the CPU.

PROGRAMS - The program or software coordinates the operations of the computer in an algorithmic process. Without the program, the computer is no more than a handful of parts that sits there and draws current. The programs or software is generally broken into the following components:

The Operating System Program

The Application Program

The Data Bases or Data Files

TABLE I
LOGISTICAL FACTORS

ACTIVITY	POL CONSUMED	AMMO CONSUMED	OTHER SUPPLIES CONSUMED
Move Blue Bde 1 hex (8 km)	7 tons	none	none
Move Red Div 1 hex (8 km)	16 tons	none	none
Move Artillery Battalion 1 hex	2 tons	none	none
Fire 1 Bn Arty 1 Volley	none	1.0 ton	1.0 ton
6 hours battle Blue Bde	40 tons	100 tons	8 tons
Red Div	112 tons	250 tons	30 tons
Unit Stationary for 6 hours			
Blue bde	7 tons	none	7 tons
Red Div	20 tons	none	20 tons
Arty Bn	2 tons	none	2 tons
1 Aircraft Sortie w/o Enemy Contact	4 tons	none	none
1 Aircraft Sortie w/ Enemy Contact	4 tons	6 tons	none

TABLE II

DELIVERY SYSTEM CHARACTERISTICSNuclear Delivery Systems

Description	Range in KM	Requirements
Nuclear Artillery Units	20	Arty Unit in Range
Missile Units		
Lance	110	Msle Unit in Range
Scud	280	
Scaleboard	800	
Corps Spt Wpn Sys	250	
Aircraft Delivered Munitions	n/a	QRA Aircraft Available*

* Requires 20 sorties on target for optimal damage effect.

: : : : : : : :

Chemical Delivery Systems

Description	Range in KM	Requirements
Artillery Units	20**	Arty Units in Range
Missile Units		
Lance	110	Msle Units in Range
Scud	280	
Scaleboard	800	
Corps Spt Wpn Sys	250	
Aircraft Delivered Munitions	n/a	QRA Aircraft Available***

** Requires 20 sorties on target for optimal damage effect.

*** Requires 50 sorties on target for optimal damage effect.

TABLE III
AIRCRAFT CAPABILITIES

NATO AIR ASSETS

<u>Aircraft</u>	<u>Type</u>	<u>Speed in K P H</u>	<u>Combat Radius</u>	<u>Air to Air</u>	<u>Air to Grd</u>	<u>Prep Time</u>	<u>Arm and Refuel</u>	<u>Ferry Range(km)</u>
Buccaneer	FB	600	500	13	.10	2 hrs	4 hrs	1800
Jaguar	FB/F	765	550	18	.10	2 hrs	4 hrs	1800
Phantom	FB/F	765	600	22	.13	2 hrs	4 hrs	2300
Mirage	FB/F	765	600	20	.10	2 hrs	4 hrs	2300
F-5	F	765	1200	20	.05	2 hrs	4 hrs	1800
F-15	F	765	620	37	.10	2 hrs	4 hrs	2800
F-16	FB/F	765	700	35	.15	2 hrs	4 hrs	2000
F-104	F	765	400	16	.05	2 hrs	4 hrs	1800
F-111	FB	820	1000	35	.25	2 hrs	4 hrs	3000
A-10	FB	425	300	14	.20	2 hrs	4 hrs	1200
G-91Y	F	680	300	13	.05	2 hrs	4 hrs	1800
ATK Helo		130	120	3	.20	2 hrs	1 hrs	250
Tac Trans	Cl30	680	4000	-	-	2 hrs	4 hrs	8000
A-7	FB/F	680	765	18	.10	2 hrs	4 hrs	1600
B52	B	765	4000	35	.40	2 hrs	4 hrs	10,000

TABLE IV
AIRCRAFT CAPABILITIES
SOVIET/WARSAW PACT ASSETS

<u>Aircraft</u>	<u>Type</u>	Speed in <u>K P H</u>	Combat <u>Radius</u>	Air to <u>Air</u>	Air to <u>Grd</u>	<u>Prep</u> <u>Time</u>	Arm and <u>Refuel</u>	<u>Ferry</u> <u>Range(km)</u>
SU-7	Fitter A	780	500	13	.08	2 hrs	4 hrs	1700
SU-17	Fitter C	780	550	15	.09	2 hrs	4 hrs	1700
SU-20	Fitter C	700	600	15	.10	2 hrs	4 hrs	1900
SU-24	Fencer	700	600	15	.10	2 hrs	4 hrs	1700
MIG-17		550	450	15	.04	2 hrs	4 hrs	1900
MIG-21	Fishbed	800	500	20	.07	2 hrs	4 hrs	1900
MIG-23	Flogger	800	500	26	.01	2 hrs	4 hrs	1700
MIG-27	Flogger	770	550	18	.13	2 hrs	4 hrs	1700
Transport		500	2000	0	0	2 hrs	4 hrs	3400
TU-22M	Backfire B	820	3500	35	.25	2 hrs	4 hrs	8000
ATK	Helo	190	160	14	.20	2 hrs	1 hrs	250
MIG-25	Foxbat A	765	700	21	.10	2 hrs	4 hrs	1000
TU-16	Badger G	765	2400	12	.14	2 hrs	4 hrs	3000
TU-22	Blinder B	765	960	10	.15	2 hrs	4 hrs	1400
AN-12	Cub Trnpt	640	1000	1	0	2 hrs	4 hrs	2000

INSTRUCTIONS FOR MODEL OPERATIONS

A. TURNING THE EQUIPMENT ON.

1. Lift the printer cover. Using the black knob on the right side, align the break in the paper with the top of the large silver bar. Close the lid.

2. Turn the printer on with the switch (toggle) in the right rear. Press the square on the front of the printer marked "ON LINE" and the red light should come on. Also, the "TOP OF FORM" red light will be on.

3. Turn the terminal on by pressing the switch in the right rear of the terminal located just below the fuze cap. A "beep" sound will be heard when the terminal is on.

4. On the front of the ALTOS is the on-off switch just to the left of a power button. Press the switch and the light will come on and the computer will begin to produce a whirring sound. The face of the terminal will also begin to show that the computer is up and running by scrolling up a series of data. At the bottom of the screen will appear the symbol "OA>". At that time the computer is ready to receive the commands.

B. INITIAL COMMANDS.

User inputs (that means YOU) are underlined and the CR means a carriage return, that is HIT THE KEY MARKED **RETURN**. The computer responses are indicated in **bold print**.

```
OA> EXEC CR
USAWC War Game Executive
EXEC: Your seminar group number: nn CR
EXEC: Date and time format is dd mm yy hhmm,e.g., 25 Dec 82 0947
EXEC: Give the current date and time, please: dd mm yy hhmm CR
EXEC: RESTART, or name of desired scenario: CORPS or NATO CR
EXEC: New save set name: SGnn1 CR (nn=seminar group #)
```

Data processing information will appear as the computer brings the game up. Each terminal and printer will begin to function either for the RED team or the BLUE team when it has completely finished the initial processing. At that time the terminals are ready for the initial orders.

C. RESTARTING A GAME. The same type of convention as above.

```
OA> EXEC CR
USAWC War Game Executive
*** next three lines are the same as above ***
EXEC: RESTART, or name of desired scenario: RESTART CR
EXEC: Old save set name: SGnn1 CR
EXEC: New save set name: SGnn2 CR
```

Computer then prepares for your orders.



DEPARTMENT OF THE ARMY
US ARMY WAR COLLEGE
CARLISLE BARRACKS, PENNSYLVANIA 17013

REPLY TO
ATTENTION OF

AWCAG-A

26 April 1983

MEMORANDUM THRU CHAIRMAN, DEPARTMENT OF WAR GAMING
DIRECTOR ACADEMIC AFFAIRS
SECY/CofS
D/COMDT

FOR COMMANDANT

SUBJECT: Preliminary Analysis of CARMAX 83

1. CARMAX 83, a joint theater-level computer-assisted war gaming exercise, was conducted as a student research project and an advanced course under the Military Studies Program for AY83. The objective of the project was three-fold: establish and test joint theater-level war game concepts and procedures; design and develop a joint war gaming exercise for simultaneous play between the Air War College and the US Army War College; and exercise the Airland Battle Doctrine.

2. Full scale exercise play was conducted during the period 4-8 April at both locations with students playing the key roles as commanders and staffs at the appropriate decision levels for the execution of a war in the European Central Region. Without hesitation or debate, the exercise was conducted successfully and it achieved the overall project objectives.

3. Inherent in this type of project was the need to assess the areas in which improvements could strengthen the exercise and improve its relevance toward enhancing the professional military education of the students working with the project and playing the game. Throughout the conduct of the project and the play of the game, the researchers were continually assessing the impact that this type of activity would have on future curriculum efforts in educating the professional Army officer. The following areas were identified for upgrading and added emphasis in subsequent iterations of CARMAX:

- Coordination between supporting Army/Air Force staffs and command elements (e.g. COMNORTHAG/COMTWOATAF).

- More focus on the development of a campaign plan and the integration of intelligence planning of the battlefield (IBF), sensor management, suppression of enemy air defenses, deception plans, and use of special forces units in intelligence/direct action roles.

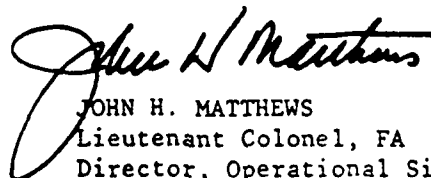
APPENDIX 11 TO ANNEX 1

AWCAG-A

26 April 1983

SUBJECT: Preliminary Analysis of CARMAX 83

- Facilitate the "macro" management of the battle versus the tendency toward "micro" management of the action.
 - Better integration of RECCE, BAI and CAS in supporting the campaign plan.
 - Expand the influence and impact of logistics on the conduct of the battle.
 - Improve the communications interface needed to support the game play including direct computer-to-computer links.
 - Expand the application of the precepts of the AirLand Battle Doctrine.
4. The successful execution of CARMAX 83 confirms the need for a joint war gaming exercise of this magnitude and its potential importance in enhancing the professional military education of the students at the US Army War College.



JOHN H. MATTHEWS
Lieutenant Colonel, FA
Director, Operational Simulations

CF:
Chairman, DMSPO
Director, CWG
Director, CM/P

DATE
FILMED
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